ROUTE 55 FREEWAY EXTENSION FEASIBILITY STUDY

Atlantic County, Cape May County and Cumberland County

prepared by:

State of New Jersey
Department of Transportation
Bureau of Preliminary Engineering

Final Summary Report

in association with

Gannett Fleming, Inc.
Taylor, Wiseman & Taylor, Inc.
New Jersey Department of Transportation
Bureau of Environmental Analysis

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Department of Transportation

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INTRODUCTION

The existing Route 55 Freeway serves as a predominant north-south highway in Gloucester and Cumberland counties. The northern terminus connects with Route 42 in Deptford Township, Gloucester County, and the southern terminus connects with Route 47 in Millville, Cumberland County. Two existing parallel routes, Routes 49 and 50 to the north and Routes 47, 670 and 83 to the south, serve to distribute existing Route 55 corridor traffic through Cumberland and Cape May Counties. Physical attributes of these parallel routes include two ten-foot travel lanes, variable shoulder widths (8 to 10 feet) and primarily level (i.e., zero percent grade) roadbeds. The system components include one signalized intersection, many unsignalized intersections, and clustered residential driveways. Because of their unique locations, these routes serve two trip types: residential-oriented trips and recreational shore-oriented trips.

At the present time, these routes provide a satisfactory level of service for an average day, but summer weekend traffic experiences spot congestion. Year 2005 traffic estimates predict limited spot congestion for an average day but severe, widespread congestion during summer weekend periods.

The Route 55 Freeway Extension Feasibility Study was initiated to develop preliminary plans that would help alleviate traffic congestion in the study area through design year 2011. This study was coordinated based on the "team" concept approach between the New Jersey Department of Transportation's Bureau of Preliminary Engineering, Environmental Analysis, Right-of-Way, and Corridor Analysis, and two engineering consultant firms (Gannett Fleming Incorporated and Taylor, Wiseman and Taylor Incorporated). Ten alternates were created as a result of this effort.

The Route 55 Freeway Extension Feasibility Study is composed of a series of four (4) Technical Memoranda, each one devoted to a particular aspect of the study. The titles of the four memoranda are as follows:

Technical Memorandum No. 1: Freeway Alignments

Technical Memorandum No. 2: Land Service Improvements and Bypasses

Technical Memorandum No. 3: Environmental Constraints

Technical Memorandum No. 4: Needs Assessment and Traffic Data

This report, the Final Summary Report, is a summarization of information contained within the four (4) Technical Memoranda.

Technical Memoranda No. 1 & 2 present all ten (10) alternative courses of action, each attempting to satisfy the Project Need. These memoranda are most useful for determining future conditions should one of the alternates be constructed. Technical Memoranda No. 3 & 4 describe the existing traffic conditions and environmental constraints in detail and define the Project Need. These are most useful for obtaining information regarding existing conditions.

There are two major categories that separate the ten alternates. The first category assumes that a 20± mile four lane extension of Route 55 is constructed along a new alignment that closely parallels the existing Route 47/670/83 corridor. Two alternates (alternates 1 & 2) are presented under this category and are described in detail in Technical Memorandum No. 1: Freeway Alignments.

The second major category assumes that several existing roadways within the study limits could be upgraded in lieu of the construction of a Route 55 Extension. Due to the vast number of possibilities this category presents, this category was further broken down into three (3) separate schemes. Scheme 1 (represented by alternates 3 and 4) provides for the existing Route 47/670/83 corridor to remain as a two lane roadway with both horizontal and vertical alignment deficiencies rectified and bypasses of the towns of Port Elizabeth and Dennisville provided. Scheme 2 (represented by alternates 5, 5A, 6, and 6A) is similar to Scheme 1 except that the existing two lane roadways would be expanded to four lanes. Finally, Scheme 3 (represented by alternates 7 and 7A) provides for a two lane upgrade along the Route 49/50 corridor. All of these alternates are presented and described in detail in Technical Memorandum No. 2: Land Service Improvements and Bypasses.

EXECUTIVE SUMMARY

The vast amount of information contained within the four Technical Memoranda has been conveniently reduced to the following discussions concerning the Needs Assessment, Public Participation, Environmental Constraints, and two Engineering Studies: one for a Route 55 Freeway Extension along a new alignment and another for upgrades to the existing Route 47/670/83 and Route 49/50 corridors with bypasses.

Needs Assessment

Technical Memorandum No. 4: Needs Assessment and Traffic Data provides detailed information on both existing conditions and anticipated future conditions for traffic patterns and community development within the study area. The effects, both positive and negative, each of the ten alternates would have on present and future conditions were evaluated during the course of the Route 55 Feasibility Study. Each alternate had to provide a means to alleviate traffic congestion within the study area, especially during peak operations which occur during summer weekends. The alternates also had to satisfy criteria set forth in the 1989 State Transportation Plan in areas such as economic development, social well-being, environmental concerns, preservation, and statewide system connectivity.

The following is a brief synopsis of the material contained within Technical Memorandum No. 3:

Character of Traffic

The study area facilities experience a seasonal variation in traffic due to the influence of the recreational shore area. Based on 1989 data, this variation amounts to approximately a 70 percent increase in average daily traffic during the summer weekend period. The joint function of these facilities is to serve both recreational and non-recreational traffic. Non-recreational trips would consist primarily of home-based trips, including trips to work and shopping.

Summer Peaking Characteristics

The Cumberland County and Cape May County corridor is one of the most recreational in New Jersey. Due to summer peaking characteristics, congestion occurs along several routes during recreational periods. Traffic conditions are most severe on summer Friday through Sunday evenings; however, this condition may only occur for 300 to 400 hours a year. Future summer traffic is expected to increase which will compound existing summer weekend congestion.

NJDOT Planning Strategies

Both the Route 55 Freeway Extension and the widening of existing Routes 47, 670 and 83 would be congruous with many of the NJDOT planning strategies. The freeway extension alternative may better serve to reduce congestion, encourage tourism, provide access to employment and social activities, and provide connectivity. In contrast, the widening of existing routes would also be congruous with the additional strategies of SIP Air Quality and the Short-Range Plan and may not be as detrimental to the preservation strategy as would a new freeway.

Route 55 Freeway Extension

The construction of a freeway will provide an exceptional level of service in the summer but will be essentially under-utilized on an average day. If the shore communities grow at rates substantially beyond those that are now projected, a Route 55 Freeway Extension will provide reserve traffic capacity.

The Routes 47, 670 and 83 corridor will experience approximately equal congestion relief with a Route 55 Freeway Extension as with a widening of Routes 47, 670 and 83.

The Garden State Parkway will experience a significant increase in congestion south of a Route 55 Freeway connection and improvements to the existing at-grade intersections will be critical.

The Atlantic City Expressway and the Garden State Parkway to the south of the A.C. Expressway would experience approximately a five percent diversion to the Route 55 Freeway Extension. This diversion would not significantly reduce congestion in these areas.

Alternative Corridors

Route 47 between Route 55 and Route 83 is presently being upgraded from 10 foot to 12 foot travel lanes with shoulders. Route 670 has recently been resurfaced to 12 foot lanes and shoulders. The intersections of Route 47 and Route 670 in both Cumberland County and Cape May County are being reconstructed. In the near term, these improvements will meet the daily need, although congestion will occur on summer weekends.

During the future summer weekend conditions, a capacity increase of two lanes in the Routes 47, 670 and 83 corridor will provide an adequate level of service, however, some congestion on Route 47 south of Route 670 can be expected. During the future average day, a capacity increase will provide an exceptional level of service and the need for a widening would be marginal. The congestion relief provided by this alternative is approximately equal to the relief which would be provided by a Route 55 Freeway Extension. Improvements to Routes 49 and 50 corridor alone will do little to relieve congestion in the Routes 47, 670 and 83 corridor. However, summer traffic should be encouraged to use the reserve capacity of the Routes 49 and 50 corridor in addition to operational strategies that would manage the peaking characteristics on summer Friday through Sunday evenings. This improvement to the Routes 47, 670 and 83 corridor, in combination with strategies to better utilize the reserve capacity of the Routes 49 and 50 corridor, will defer the need for future improvements and expansions.

Public Participation

As part of the initial identification of environmental constraints, letters were sent to several Federal and State environmental/permitting agencies to obtain "any relevant technical information and agency policy statements regarding the extension of Route 55". Even though these letters were submitted prior to the development of the various alternatives, they did acknowledge the environmentally sensitive nature of the study area, and noted their respective concerns regarding the development of various impact analyses. Key responses were received from the New Jersey Pinelands Commission, and NJDEPE which are summarized below:

New Jersey Pinelands Commission

> "Any proposal which can not clearly demonstrate that it is intended to primarily serve the needs of the Pinelands could not be approved unless the Commission was to grant a 'waiver of strict compliance'".
>
> "Given the presence of substantial wetlands, endangered species, and major existing and proposed public land holdings it will be difficult to avoid a finding of substantial impairment to the resources of the Pinelands from some or all of the possible alternatives. Such a finding would preclude development of that alternative.".

NJDEPE

> "The proposed extension could adversely impact sensitive environmental resources in the study area as well as the potential to further degrade/impact upon natural resources and conservation lands".

Other responses from U.S.Environmental Protection Agency, U.S. Army Corps of Engineers, U.S. Fish and Wildlife Service, and U.S. Department of the Interior all indicate their awareness of the environmental sensitivity of the study area, and their concern for impacts to wildlife, wetlands, water quality, and secondary development. A copy of these "early coordination" response letters may be found in the Appendices of Technical Memorandum No. 1: Freeway Alignments and Technical Memorandum No. 2: Land Service Improvements and Bypasses.

Environmental Constraints

In December of 1990, the Bureau of Preliminary Engineering (BPE) requested the Bureau of Environmental Analysis (BEA) to identify various environmental constraints within a defined study corridor that encompassed parts of three counties (Atlantic, Cumberland, and Cape May) involving eight (8) municipalities. The general limits of the study corridor began at the southern terminus of existing Route 55 and extended southeasterly to the Garden State Parkway in Cape May County.

This extensive study area was highlighted on a series of 10 USGS Quadrangle maps (1:24000 scale), with each technical discipline receiving one set of ten maps. Using these maps as a basis, the respective environmental constraints within the study limits were noted. The environmental constraints identified included:

- Parklands
- Threatened and/or Endangered Species
- Waterways
- Wetlands
- Upland Forests
- Hazardous Waste Sites
- Cultural Resources
- CAFRA/Pinelands' Zones or Areas
- Agricultural Development Areas
- Farmsteads Protected by Eight Year Deed Restrictions
- Proposed Developments

These constraints were identified using various sources within and outside the Department including close coordination with NJDEPE for information concerning Hazardous Waste Sites, Parklands, Threatened or Endangered Species, Wetlands and Cultural Resources. The results of this effort culminated with an extensive environmental inventory mapped on USGS Quad sheets and a series of individual technical reports discussing methodologies and the significance of the constraints identified.

Technical Memorandum No. 3: Environmental Constraints is a compilation of these smaller technical reports. Several steps were necessary in order to simplify the unification of these various reports and to make the information easier to access. First, the reports were grouped into five major headings: Cultural Resources, Endangered Species, Socioeconomic/Land Use/Visual Constraints, Wetlands Emphasis, and Corridor Contamination Sites. The structure of Memorandum No. 3 reflects these divisions. Then the information contained on the ten original USGS Quadrangle maps was compiled onto a new set of six Environmental Constraint Maps entitled:

- Archaeological Sites
- Historic Architecture
- Endangered Species
- CAFRA and Pinelands
- Parks, Forests, and Gamelands
- Wetlands Emphasis

The information shown on the "Archaeological Sites" constraint map was deemed too sensitive to appear within this report and was sent to the Department as a separate submission. The other five constraint maps, along with a "Composite Overlay" map showing all constraints superimposed simultaneously on a composite of the USGS Quadrangle maps, have been reproduced in Appendix B of this Final Summary Report.

In general, most of the individual reports that make up Memorandum No. 3 included either a "Results" or a "Conclusions" section that summarized the highlights of the study. Some of the key conclusions reached included:

1. The entire study area, with the exception of a small area surrounding Route 49 near Millville, is within the New Jersey Pinelands and/or CAFRA Zone. Any alternative crossing these areas would require compliance with the respective policies of the agencies overseeing these environmentally sensitive regions. Important issues which would play a role in determining compliance would involve the overall environmental impact of the alternative, the potential for inducing secondary development in the study area, and the need for the improvement.

2. The majority of the study area is ecologically sensitive with vast wetland areas (approximately 40% of the entire study area), threatened/endangered species present, acres of undeveloped upland forests and several waterways with exceptional water quality.

3. Land use patterns are primarily rural with limited scattered low density residential and small scale commercial uses adjacent to existing roadways. Additionally some moderate density mixed use "clusters" or villages which serve as centers for the surrounding rural areas are also present. These villages date back to and are typical of early settlement patterns of the

eighteenth and nineteenth centuries.

4. Several parks, state forests, and wildlife management areas are also present throughout the study area.

In total, the study area can be characterized as a primarily rural, ecologically and historically significant part of New Jersey that would be sensitive to any major new development.

Engineering Study: *Freeway Alignments*
(Alternates 1 & 2)

Consideration of the extension of the Route 55 Freeway from its current terminus at Route 47 in Millville, Cumberland County, southeast to the Garden State Parkway (G.S.P.) in Cape May County is the subject of Technical Memorandum No. 1: Freeway Alignments. The extension of Route 55 would provide a freeway for seashore traffic with an improved level of service and would lessen traffic congestions during the summer tourist months. Although many alternates to the freeway concept were examined (as presented in Technical Memorandum No. 2: Land Service Improvements and Bypasses), Technical Memorandum No. 1 addresses the extension of Route 55 as a controlled limited access freeway ultimately connecting to the Garden State Parkway, in Dennis Township, approximately 1.7 miles north of Exit 13.

The freeway extension is oriented southeastward on a new alignment from Route 47 near Port Elizabeth to Ludlams Pond in Dennisville then follows the existing Route 83 alignment to Route 9 and the Garden State Parkway. The total length of the extension is approximately 20 miles.

Typical Sections

Both of the alternates presented in this engineering study provide for two (2) lanes in each direction in a freeway capacity consistent with the existing Route 55 Freeway. Alternate 1 limits the footprint of disturbance of the highway by providing a minimum width cross-section utilizing median barrier curb. Alternate 2 provides a grassed median typical section with a width of 26 ft., which provides for 36 ft. of clear zone between opposing travel lanes. Embankment slopes of 4 horizontal to 1 vertical were utilized to conservatively estimate impacts.

Horizontal Alignment

Geometric controls for horizontal alignment were based upon the stated design speed, typical for freeway design speeds of 70 miles per hour. A conservative minimum baseline radius of 6,000 ft. was selected in order to avoid horizontal sight distance restrictions with a median barrier curb. The level of study did not warrant development of different alignments for the two (2) alternate typical sections.

The horizontal alignment development was principally controlled by avoidance of wetlands areas, potential endangered species habitats, historical/archaeological sensitive areas, existing developed properties, relationship to the existing highway network and minimizing construction costs. Due to the large expanses of wetlands within the study limits, avoidance and minimizing of impact to these areas were of primary significance in route selection. In general, the new alignment where practical closely parallels existing highway alignments in order to follow existing developed and therefore man-disturbed paths. These alignments are also typically more upland and therefore less wetland.

Vertical Alignment

Design parameters for vertical alignment were based upon desirable criteria for a design speed of 70 miles per hour. A minimum profile grade of 0.5 percent was used throughout to ensure adequate roadway drainage.

The profile grade of the Freeway was maintained a minimum of 7 ft. above existing stream crossing inverts to provide for the stream opening and longitudinal roadway drainage. Minimum vertical clearance of 15.5 ft. and 25 ft. were held where the Freeway crosses over existing roadways and railroad tracks respectively. Highway crossings over the Freeway held a minimum vertical clearance of 16.5 ft.

Generally it is more cost effective to bridge a cross road over a mainline freeway, as the width of the cross road is usually less and the design speed of the cross road for profile design is also less, thereby reducing the earthwork (fill) required. The avoidance alignment of the Freeway required locating the roadway in many cases parallel to and minimally offset from Route 47 and County Route 670. In order to avoid significant reconstruction of these parallel routes due to reconstruction of cross roads if bridged over the Freeway, the Freeway was bridged over the cross roads. The net effect is to increase construction costs in order to avoid (minimize) disturbance of environmentally sensitive areas.

Route Selection

Beginning at the existing southerly end of the Route 55 Freeway, the Freeway alignment from Schooner Landing Road to Hunter's Mill Road was held to the east of Route 47 to avoid significant impacts to wetlands of high potential as endangered species habitats (High Quality) and to provide a by-pass around Port Elizabeth which may contain many archaeological and historic sites (see photos 1 & 2, page 10). From Hunter's Mill Road to the vicinity of Ludlams Pond, the Freeway alignment basically follows Cape Road (County Route 670) to the east to minimize the impacts to High Quality wetlands and reduce the number of grade separated crossings (bridges). The alignment crosses over to the west side of County Route 670 at County Route 550 Spur. The alignment continues to closely parallel County Route 670 and Route 47 to reduce wetland, historical and archaeological impacts (see photo 3, page 15).

From the vicinity of Ludlams Pond to Route 47 south of Dennisville, the alignment consists of a by-pass around Dennisville to minimize impacts to existing Route 47, the town

of Dennisville, and archaeological and historic sites. This alignment required the Freeway to cross Dennis Creek and the surrounding High Quality wetlands. To reduce the impacts to the wetlands a 3,150 ft. long viaduct was assumed (see photos 4 & 5, pages 15 & 21 respectively).

From Route 47 south of Dennisville, the freeway alignment basically follows the existing alignment of Route 83 through to Route 9, then extends to tie into the Garden State Parkway (see photo 6, page 21). The existing horizontal alignment of Route 83 would be slightly modified to meet freeway standards. Adjacent land use along this section is wooded with few residential homes and businesses except in the vicinity of Route 9.

Interchanges

Interchanges to the Route 55 Freeway were assumed at Route 47 (just south of Schooner Landing Road), at North Dennis-Marshallville Road (C.R. 557), at Route 9 and the G.S.P.

The interchange at Route 47 would continue to provide an existing direct connection to Route 55 for the local residents of Port Elizabeth. A southbound exit ramp to Route 47 and a northbound entrance ramp from Route 47 utilizing a bridge over Route 55 are provided. To provide for the ramp movements currently missing at the Schooner Landing Road interchange, a northbound exit ramp was studied with its exit prior to the northbound connector entrance ramp to avoid a substandard weave situation. On southbound Route 55 there is sufficient room to provide the 2,000 ft. minimum weave distance required between the entrance ramp and connector exit.

Just north of Dennisville, at County Route 557, an interchange is provided to allow access for the residents of the Dennisville area. This interchange would be designed as a "trumpet" interchange, to align directly opposite the existing intersection of County Route 557 with Route 47.

Local commuters in this area use Route 83 to access Route 9 just north of the Exit 13 of the G.S.P. As part of the Freeway extension, existing Route 83 would become part of the Freeway. The Route 9 interchange would maintain existing access, as previously enjoyed by local commuters, to recreational facilities and to the towns of Seaville to the north and Cape May Courthouse to the south.

An interchange to the G.S.P. (a north/south corridor route) would allow access to various shore points along the Cape May shore line from Cape May to Ocean City. Full ramp connections to and from the Parkway are provided.

Environmental Impacts & Needs Assessment

Key environmental factors that had to be addressed for each alternate are presented in Technical Memorandum No. 3: Environmental Constraints. These factors include:

Photo 1:

Schooner Landing Road over Existing Route 55. The freeway alignment, shown as an orange dashed line, provides an easterly bypass of Port Elizabeth. The yellow line represents the current alignment.

Photo 2:

Southern terminus of existing Route 55 at the Route 47/55 intersection. The yellow dashed line is a bypass to the west of Port Elizabeth. The freeway alignment/east Port Elizabeth bypass is shown in the background (orange dashed line).

Cultural Resources - Impacts to the cultural heritage of the region had to be considered, including the affects to historic architecture (including buildings and their settings), historic districts, potentially historic buildings and bridges, documented historic and prehistoric archaeological sites, and areas that show high potential to yield archaeological resources.

Endangered Species - Serious consideration had to be made towards each alternate's affect on endangered and threatened species and their habitats.

Socioeconomic, Land Use, and Visual Constraints - Social and economic impacts, including community and business district disruption and number of residents and businesses displaced were considered for each alternate. Also, each alternate was compared to policies that govern land use in the study area, including Pinelands and CAFRA policies, Agricultural Development Area policies, policies concerning potential secondary development, and the impacts the alternates would have on parks, forests, gamelands, and wildlife refuges. Finally, the visual impact each alternate would have on local scenic corridors was addressed.

Wetlands - A considerable percentage of the land within the study area is designated as wetlands, ranging from average to high quality. Impacts to water quality and upland forests were also a concern.

Contamination Sites - Affects to potential and hazardous waste and contamination sites were examined for each alternate studied.

Each alternate also had to satisfy the project needs as set forth in Technical Memorandum No. 4: Needs Assessment & Traffic Data. Existing Levels of Service (LOS) for both average day and tourism season conditions were compared to proposed Levels of Service.

Engineering Study: *Land Service Improvements and Bypasses*

Two roadways are described in the "Needs Assessment" Study as alternative parallel corridors for the possible extension of the Route 55 Freeway. The two roadways are the Route 47/670/83 corridor and the Route 49/50 corridor. Routes 47, 670, and 83 are the major arterial routes for the distribution of existing Route 55 corridor traffic through Cumberland and Cape May Counties, from the terminus of the Route 55 Freeway to the Southern New Jersey resort towns. Routes 49 and 50 are also used by travellers as an access to and from the Cape May County towns.

Consideration of improvements to the existing 47/670/83 and 49/50 corridors within the study limits is the subject of Technical Memorandum No. 2: Land Service Improvements and Bypasses. The upgrading of one of these corridors would provide a more efficient means for motorists to access the seashore resort towns of Cape May County as well as alleviate traffic congestions and hazardous driving conditions during the summer tourist months. Three possible schemes are presented in this engineering study:

Scheme 1 - 47/670/83 Corridor: Two Lane Upgrade

Scheme 2 - 47/670/83 Corridor: Four Lane Upgrade

Scheme 3 - 49/50 Corridor: Two Lane Upgrade

Two alternates (alternates 3 & 4) are presented under Scheme 1, four alternates (alternates 5, 5A, 6, & 6A) are presented under Scheme 2, and two alternates (alternates 7 & 7A) are presented under Scheme 3. The main difference between alternates within Schemes 1 & 2 are the alignments of the bypasses around Port Elizabeth. Scheme 3 alternates differ by their treatment of the Route 49/Route 50 intersection.

Scheme 1 - 47/670/83 Corridor: Two Lane Upgrade
(Alternates 3 & 4)

The feasibility of a two (2) lane upgrade along the Route 47/670/83 corridor was evaluated as an additional option to satisfy the distribution of existing traffic through Cumberland and Cape May Counties, specifically through the towns of Port Elizabeth and Dennisville. From a traffic viewpoint, this scheme considered the upgrading of existing horizontal and vertical alignment deficiencies necessary to maintain a posted speed limit of 50 mph throughout the entire corridor. It should be noted that the implementation of this alternative by itself will not significantly improve the current Level of Service (LOS) experienced along the corridor during the summer peak hours.

The specific locations along the noted corridor which were studied in detail are around the towns of Port Elizabeth and Dennisville, where the existing facilities during the 30 weekend days of the summer peak hours, are operating under a LOS F/E respectively. A two (2) lane bypass around the noted locations was assumed to minimize the impacts to the existing towns (see photos 1 & 2, page 10, and photos 4 & 5, pages 15 & 21 respectively). Two (2) two lane land service alternatives along the 47/670/83 alignment were examined based upon review of the following typical section options:

Alternate 3 - two (2) lane roadway with shoulders and an easterly bypass of Port Elizabeth and a westerly bypass of Dennisville

Alternate 4 - two (2) lane roadway with shoulders and a westerly bypass of Port Elizabeth and a westerly bypass of Dennisville

Horizontal Alignment

Currently, approximately 55 percent of the existing horizontal alignment was found to be substandard for the posted speed limit of 50 mph (design speed = 55 mph) with respect to the pavement having the proper superelevation.

The deficiencies addressed with regard to the existing horizontal geometries included the improvement of selective curve radii, adequate superelevation rates, and provisions for sufficient tangent between curves, corrections which were primarily accomplished by localized realignment of the roadways within the above noted corridor. All of the existing horizontal curve information was evaluated for conformance based on the criteria predicated by the Department's Roadway Design Manual. In general, the degree of curves were selected between 0.5 degrees to 4 degrees based on the level of improvements necessary to meet minimum standards, which also kept the right-of-way acquisition to a minimum.

Utilizing all the information generated from the analysis described above and the Environmental/Socioeconomic Constraint Maps, modifications to the horizontal alignment were developed making every attempt to minimize the effects to the various environmental concerns and R.O.W. impacts, where possible. The alignment was driven by the locations of the medium and high quality wetlands, however in order to avoid substantial residential and commercial right-of-way acquisition through the towns of Port Elizabeth and Dennisville, bypass alignments were assumed which required spanning the wetlands by viaduct structures.

Vertical Alignment

Currently, approximately 70 percent of the existing vertical alignment was found to be substandard for the posted speed limit of 50 mph (design speed = 55 mph) with respect to the minimum profile grade requirements of 0.50%. Also, there exists stretches of pavement, specifically along Routes 47 and 83, which were constructed with small changes in profile grade without vertical curves, but rather points of vertical intersections (P.V.I.'s).

In order to improve the overall corridor Level of Service to a degree with the adoption of a two (2) lane upgrade, provisions for grade separated in lieu of at grade intersections have been adopted as a desirable condition for this study. Locations for the required two (2) lane bridges are listed below:

1. Route 55 over Route 47 Ramp
2. Route 55 over High Quality Wetlands and Manumuskin River
3. Route 55 over P.R.S.L. and Muskee Creek
4. Route 55 over Route 47
6. Route 55 over P.R.S.L. (existing Route 83 over P.R.S.L.)
7. County Route 626 over Route 55
8. Route 55 over Route 9
9. Route 55 over G.S.P. northbound/southbound

Minimum roadway, waterway, and railroad underclearance requirements governed the profile grades along the alignment.

Bypasses

It was identified in the "Needs Assessment" that the towns of Port Elizabeth and Dennisville presently experience congestion during the summer peak hours occurring over 30 weekend days.

Due to the close proximity of commercial and residential properties complicated by the historic nature of many of these properties, a bypass of Route 47 was developed for both areas. Westerly bypasses were developed around Port Elizabeth and Dennisville in order to minimize the impact to the relatively undisturbed nature of the land surrounding these towns. Although both alternates utilize the westerly bypass of Dennisville, only alternate 4 utilizes the westerly bypass of Port Elizabeth. Alternate 3 bypasses Port Elizabeth to the east along a portion of the alignment developed for the two freeway alternatives (see Technical Memorandum No. 1: Freeway Alignments). The development of each of the bypasses is described below:

Easterly Bypass @ Port Elizabeth (orange dashed line; see photos 1 & 2, page 10) - This easterly two (2) lane undivided bypass commences at the southerly end of the Route 55 Freeway and follows an avoidance alignment as described in Technical Memorandum No. 1: Freeway Alignments for approximately 4.5 miles. The bypass then diverts the new alignment to a horizontal bend in County Route 670 where a smooth transition back to the existing alignment occurs.

Westerly Bypass @ Port Elizabeth (yellow dashed line; see photo 2, page 10) - This westerly two (2) lane undivided bypass commences in the vicinity of Fralinger Lane (Route 47 M.P. 34.04) and spans across the High Quality Wetlands and the Manumuskin River with a structure of 750' in length. The centerline of the bypass roadway realigns with the Route 47 centerline in the vicinity of Ferry Lane (Route 47 M.P. 33.23).

Westerly Bypass @ Dennisville (yellow dashed line; see photos 4 & 5, pages 15 & 21 respectively) - This westerly two (2) lane undivided bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150' in length. This alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east of the bypass alignment. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. (Route 47 M.P. 17.35 = Route 83 M.P. 0.15).

Photo 3:

Intersection of East Creek Pond Road (CR 670) and Delsea Drive (Rt. 47).

Photo 4:

Existing Route 47 in the vicinity of Ludlams Pond near Dennisville. The freeway alignment (orange) provides a westerly bypass around Dennisville. The yellow dashed line represents a bypass utilizing the existing alignment.

Localized Geometric Improvements

Listed below are locations along the corridor, besides the bypasses around Port Elizabeth and Dennisville, that are geometrically substandard and will require R.O.W. acquisition for implementation:

1. County Route 670, approx. 2,200' west of Dorchester/ Hunters Mill Road, 900' curve improvements requiring 42' of additional R.O.W.

2. County Route 670, commencing approximately 1,500' west of Belleplain Road (County Route 550) heading east, 5.0 miles of reconstruction requiring 18' to 84' of additional R.O.W. Included within this segment of roadway is the realignment of Hands Mill Road (County Route 550), which must also be addressed.

3. Route 47 from the County Route 670 intersection in Cape May County, 1.3 miles of profiling within the existing R.O.W. (see photo 3, page 15)

4. Route 83 from the existing P.R.S.L. structure to Route 9, 3.65 miles of reconstruction which predominantly can be performed within the State's R.O.W. (see photo 6, page 21)

Scheme 2 - 47/670/83 Corridor: Four Lane Upgrade
(Alternates 5, 5A, 6, & 6A)

This scheme considered the widening of two lanes of additional capacity along the Routes 47/670/83 corridor. Port Elizabeth and Dennisville bypasses (see photos 1 & 2, page 10, and photos 4 & 5, pages 15 & 21 respectively) and the extension of Route 83 to a full interchange with the G.S.P. were also considered. Four (4) four lane land service alternatives along the 47/670/83 alignment were examined based upon review of the following typical section options:

Alternate 5 - four (4) lane roadway with shoulders and barrier median with west bypass of Port Elizabeth and west bypass of Dennisville

Alternate 5A - four (4) lane roadway with shoulders and barrier median with east bypass of Port Elizabeth and west bypass of Dennisville

Alternate 6 - four (4) lane roadway with shoulders and grass median with west bypass of Port Elizabeth and west bypass of Dennisville

Alternate 6A - four (4) lane roadway with shoulders and grass median with east bypass of Port Elizabeth and west bypass of Dennisville

Horizontal Alignment

All of the existing horizontal curves within the Route 47/670/83 corridor were found to be substandard for the design requirements regarding the upgrade of this facility to a design speed of 60 mph. Currently, approximately 55 percent of the existing horizontal alignment is deficient for the posted speed limit of 50 mph (design speed = 55 mph) with respect to the pavement having the proper superelevation.

The deficiencies of the existing horizontal geometries were corrected primarily by the realignment of the roadways within the above noted corridor. All of the existing horizontal curve information was evaluated for conformance based on the criteria predicated by the Department's Roadway Design Manual. In general, the degree of curves were selected between 0.5 degrees to 4 degrees based on the level of improvements necessary to meet minimum standards, which also kept the right-of-way acquisition to a minimum. Upon selection of a curve radius, the appropriate maximum rate of superelevation was computed which correspondingly determined the need for transition curves. The criteria used for all tangent distances set between consecutive horizontal curves was governed by the minimum length required to properly "roll over" the superelevated sections. Transition curves were considered in the development of the horizontal alignment.

Utilizing all the data generated from the analysis described above in addition to utilizing the information obtained from the Environmental and Socioeconomic Constraint Maps, an alignment was developed making every attempt to minimize the effects to the various environmental concerns and R.O.W. impacts, where possible. Since significant reconstruction was required in order to provide two (2) lanes of additional capacity to the corridor, the locations selected for all widening were based upon these considerations. Specifically, the alignment was driven by the locations of the medium and high quality wetlands; however in order to avoid substantial residential and commercial right-of-way acquisition through the towns of Port Elizabeth and Dennisville, bypass alignments were assumed which required spanning the wetlands by viaduct structures.

In addition to addressing the geometrical features along the alignment, access onto this four (4) lane land service roadway, specifically the barrier median condition, required special attention. All major crossroads along the corridor were evaluated with provisions for jug handles developed at major signalized intersections. Provisions have also been made for emergency vehicles with full loop jug handles positioned between 1/2 to 1 mile intervals along the alignment.

Vertical Alignment

All of the vertical curves within the Route 47/670/83 corridor were found to be substandard for the design requirements regarding the upgrade of this facility to a design speed of 60 mph. Currently, approximately 70 percent of the existing vertical alignment is deficient for the posted speed limit of 50 mph (design speed = 55 mph) with respect to the minimum profile grade requirements of 0.50%. Also, there exists stretches of pavement, specifically along Routes 47 and 83, which were constructed with small changes in profile grade without vertical curves, but rather points of vertical intersections (P.V.I.'s).

"Minimum" instead of "desirable" crest and sag curve design requirements were adopted in the design process for the determination of the extent of improvements. Standards for tangent alignments have been determined as:

Four Lanes w/ Barrier Median:	Min. Grade = 0.50% Max. Grade = 3.00%
Four Lanes w/ Grass Median:	Min. Grade = 0.50% Max. Grade = 3.00%

In order to improve the overall Level of Service along this widened four (4) lane alignment, provisions for grade separated in lieu of at grade intersections have been adopted as a desirable condition for final presentation. Locations of required bridges are as follows:

1. Route 55 over Route 47 Ramp
2. Route 55 over High Quality Wetlands and Manumuskin River
3. Route 55 over P.R.S.L. and Muskee Creek
4. Route 55 over Route 47
6. Route 55 over P.R.S.L. (existing Route 83 over P.R.S.L.)
7. County Route 626 over Route 55
8. Route 55 over Route 9
9. Route 55 over G.S.P. northbound/southbound

Minimum roadway, waterway, and railroad underclearance requirements governed the profile grades along the alignment.

Bypasses

It was identified in the "Needs Assessment" that the towns of Port Elizabeth and Dennisville presently experience congestion during the summer peak hours occurring over 30 weekend days.

Due to the close proximity of commercial and residential properties complicated by the historic nature of many of these properties, a bypass of Route 47 was developed for both areas. Westerly bypasses were developed around Port Elizabeth and Dennisville in order to minimize the impact to the relatively undisturbed nature of the land surrounding these towns. Although all four of the alternates utilize the westerly bypass of Dennisville, only alternates 5

& 6 utilize the westerly bypass of Port Elizabeth. Alternates 5A and 6A bypass Port Elizabeth to the east along a portion of the alignment developed for the two freeway alternatives (see Technical Memorandum No. 1: Freeway Alignments). The development of each of the bypasses is described below:

Easterly Bypass @ Port Elizabeth (orange dashed line; see photos 1 & 2, page 10) - This easterly four (4) lane divided/undivided bypass commences at the southerly end of the Route 55 Freeway and follows an avoidance alignment as described in Technical Memorandum No. 1: Freeway Alignments for approximately 4.5 miles. The bypass then diverts the new alignment to a horizontal bend in County Route 670 where a smooth transition back to the existing alignment occurs.

Westerly Bypass @ Port Elizabeth (yellow dashed line; see photo 2, page 10) - This westerly four (4) lane divided/undivided bypass commences in the vicinity of Fralinger Lane (Route 47 M.P. 34.04) and spans across the High Quality Wetlands and the Manumuskin River with a structure of 750' in length. The centerline of the bypass roadway realigns with the existing centerline of Route 47 in the vicinity of Ferry Lane (Route 47 M.P. 33.23).

Westerly Bypass @ Dennisville (yellow dashed line; see photos 4 & 5, pages 15 & 21 respectively) - This westerly four (4) lane divided/undivided bypass commences in the vicinity of Ludlams Pond (Route 47 M.P. 18.44) and spans across the High Quality Wetlands and Dennis Creek with a structure of 3,150' in length. The bypass alignment extends a tangent from the 47/670 intersection east of the curve at Holly Drive and Ludlams Pond thus avoiding the potential hazardous waste site to the east. The centerline of the bypass roadway proceeds south parallel with Route 47, and realigns with the existing centerline in the vicinity of the Route 83 over the PRSL structure. (Route 47 M.P. 17.35 = Route 83 M.P. 0.15).

Route 47 and Route 83 Intersection Improvements

Two (2) levels of intersection improvements were evaluated for the present at grade condition at Route 47/83.

The first option was to utilize the existing at grade situation at the noted intersection during the development of the four (4) lane horizontal and vertical alignments for the 60 mph land service roadway. Modifications were made to upgrade the present intersection geometry. Other provisions were also made to alleviate the heavy stacking for left turn movements from Route 47 onto Route 83 heading east.

The second option was to upgrade this condition to a grade separated intersection with a feasibility analysis performed for overpass and underpass alternates for Route 55.

The grade separated condition of Route 55 over Route 47 was chosen in lieu of the at grade improvements option and underpass scheme for the following reasons:

1. The four (4) lane Land Service Roadway upgraded for a 60 mph design speed will provide traffic with uninhibited flow in both directions while eliminating the "bottleneck" of left hand turns from existing Route 47.

2. A significant drainage pocket would be created between the end of the Route 55 viaduct structure at M.P. 6.35 and Route 47 (prop. M.P. 5.86) as an at grade condition, due to the 14' difference in elevations with a separation of 1,000' horizontally. In addition, in order to provide vertical alignment conformance by the Roadway Design Manual, the existing tangent grade of 5% between Route 47 and the Route 83 over the PRSL structure would require a grade reduction to 3% (max.), for the two (2) structures separated by 950' and 30' in elevation. The desirable vertical alignment to address this situation was to create a low point between the end of the viaduct structure and the Route 55 over Route 47 structure, continue climbing at a 1% grade to satisfy the 16'-6" minimum underclearance requirements over Route 47, and meet the existing bridge deck elevation of the PRSL structure.

3. Since the existing Route 47 intersection is located in a highly sensitive wetland area, it was determined to be more feasible to span Route 55 over Route 47 constructed with an embankment condition, after evaluating the two (2) scenarios listed below:

    a. Minimizing the wetland impacts by continuing the viaduct structure over Route 47 for an additional 1,000' (resultant viaduct span length would be 4,150'); this situation would require all the ramps on the west side to be on structure creating excessive construction costs.

    b. Construction of a Route 55 underpass condition would require more wetland acquisition, reconstruction of Route 47 to satisfy the 16'-6" underclearance requirements over Route 55, and the resultant grade differential between the Route 55 finished pavement elevation and the existing PRSL structure (separation of 950' between structures).

4. The construction of a grade separated intersection scheme along the realignment bypassing Dennisville does not adversely impact the local residential and business community.

Photo 5:

Existing Routes 47/83 interchange. Both the Dennisville bypass (yellow dash) and the freeway alignment (orange) tie into and follow the exiting Route 83 alignment to provide access to Route 9 and the Garden State Parkway.

Photo 6:

Southern terminus of Route 83 at the Routes 83/9 intersection. All land service alternates and both freeway alignment alternates would extend beyond Route 9 to connect with the Garden State Parkway (foreground).

Route 83 and Route 9 Intersection Improvements

Two (2) levels of intersection improvements were evaluated for the present at grade condition at Route 83/9.

The first option was to utilize the existing at grade situation at the noted intersection during the development of the four (4) lane horizontal and vertical alignments for the 60 mph limited access roadway. Modifications provided for the signalization of this intersection and the upgrading and widening of the existing horizontal alignment of Route 9 to conform with superelevation and sight distance requirements. The following traffic movements are anticipated at this intersection:

1. Deceleration lane provided for traffic heading east on Route 83 with a slip ramp onto Route 9 south; Route 9 will utilize the existing shoulder as an acceleration lane for traffic merging into the southbound lane.

2. Deceleration lane provided for traffic heading south on Route 9 with a slip ramp onto Route 83 west; Route 83 will utilize the shoulder as an acceleration lane for traffic merging into the westbound lanes.

3. Two (2) lanes of through movement each direction across the signalized intersection to and from the Garden State Parkway Northbound or Southbound.

4. Traffic heading north on Route 9 traveling towards Route 83 east must exit to a loop jug handle in the northeast quadrant of the intersection and merge with traffic from the Parkway connection towards the noted destination. This movement eliminated left hand turns from Route 9.

It should be noted that the assumed slip ramps on and off Route 9 will require the acquisition of three (3) businesses and possible impact to a fourth along Routes 83 and 9.

The second option was to upgrade this condition to a grade separated intersection with again a feasibility analysis performed for overpass and underpass alternates for Route 55.

The grade separated condition of Route 55 over Route 9 was chosen in lieu of the at grade improvements option and underpass scheme for the following reasons:

1. The four (4) lane limited access roadway upgraded for a 60 mph design speed will provide traffic with uninhibited flow in both directions from the existing Route 55 southern terminus to the Garden State Parkway.

2. In order to provide a Route 55 underpass condition at Route 9, significant excavation of the existing ground in addition to the reconstruction of Route 9 would be required to provide a 16'-6" minimum underclearance over Route 55.

3. Since the desirable condition was to span Route 55 over the Garden State Parkway (northbound and southbound lanes) maintaining the same underclearance requirements, it was more feasible on a construction cost basis to remain in an embankment condition between the structures.

This study also addressed "land locked" properties created by the Route 83 extension and Route 9 intersection improvements. The development of a 2,100' frontage road which parallels the Route 83 extension for 650' would satisfy access requirements for existing residential properties east of the Route 9 intersection. Access has been provided approximately 430' north of the grade separated intersection to a frontage road terminated by a cul-de-sac servicing two (2) existing residential properties between Route 9 and the Parkway interchange. Based on the location of these properties shown on the 200-scale and 400-scale aerial mapping, it appears that one (1) home may require acquisition by the Department, due to the close proximity of the embankment toe of slopes from the construction of the Route 83 extension.

Interchanges

The study also included the evaluation of the Route 83 extension beyond the Route 9 intersection to a full trumpet interchange with the existing Garden State Parkway (G.S.P.) in the vicinity of G.S.P. M.P. 15.0 (see photo 6, page 21).

The development of this extension was based on a tangent horizontal alignment from Radcliff Lane to the G.S.P. interchange, a distance of 5,140'. The following traffic movements are anticipated between the Parkway and the Route 83 extension:

1. The four (4) lane limited access roadway heading east from Route 9 will have a lane drop for the slip ramp onto the G.S.P. heading southbound. The eastbound through lane traffic will continue across the two (2) lane southbound and northbound structures to the loop ramp onto the G.S.P. northbound.

2. Heading northbound on the Parkway from the direction of M.P. 11.0, the interchange provides an exit ramp on the outside of the double barrier curb separation of the G.S.P. northbound on-ramp, for traffic proceeding onto Route 83 heading westbound.

3. Heading southbound on the Parkway from the direction of M.P. 17.0, a slip ramp has been provided for traffic proceeding onto Route 83 heading westbound or Route 9 northbound.

4. One (1) movement which did not appear to be feasible and has been restricted by this interchange, is traffic traveling from G.S.P. northbound exiting for Route 83 westbound and attempting for a direct connection with Route 9 heading south. This condition can be attained either by using the Land Service Roadway condition and continuing west on Route 83 to the first jug handle and reversing back to Route 9 or exiting the G.S.P. at M.P. 11.0.

It was assumed during the plan development of the horizontal and vertical alignments for the Route 83 extension beyond the Route 9 intersection to the G.S.P. interchange, that the New Jersey Department of Transportation jurisdiction limits would terminate at the existing right-of-way line of the Garden State Parkway (N.J.H.A.). However, the Preliminary Construction Cost Estimate prepared for this length of roadway includes all the costs associated with ramp construction and the two (2) structures over the Parkway.

Scheme 3 - 49/50 Corridor: Two Lane Upgrade
(Alternates 7 & 7A)

This scheme considered a two (2) lane upgrade for the Route 49/Route 50 corridor as an alternate to a new freeway alignment and land service improvements to the 47/670/83 corridor. Improvements to existing horizontal and vertical alignments were necessary to facilitate a design speed of 60 mph. Specific locations were also examined for modifications, including the Route 55 interchange with Route 49 (see photo 7, page 26), a bypass around the town of Tuckahoe, and the intersection of Route 50 with Route 9 in Seaville (see photo 8, page 26).

Two (2) two lane land service alternatives along the 49/50 alignment were examined based upon review of the following typical sections:

Alternate 7 - two (2) lane roadway with shoulders, a bypass of Tuckahoe, and an at grade intersection at Routes 49 & 50.

Alternate 7A - two (2) lane roadway with shoulders, a bypass of Tuckahoe, and a grade separated intersection at Routes 49 & 50.

Horizontal Alignment

All of the horizontal curves within the Route 49/50 corridor are substandard in that the pavement is not properly superelevated. With few exceptions, this deficiency can be corrected by providing the appropriate superelevation without change to the alignment or acquisition of additional right-of-way. In these cases, significant reconstruction would be required to provide superelevation with necessary runoff. In several cases the existing radii are less than the minimum permitted for the maximum rate of superelevation. In these cases, improvement to meet "desirable" design criteria, including 10 ft. shoulder width, were designed for.

Where consecutive horizontal curves in opposite directions were found, the minimum tangent between the curves was held as that required to properly "roll over" the superelevation sections. In the case of "broken back" horizontal alignment, consecutive curves in the same direction, no minimum separating tangent length was required as a minimum condition. Although this is contrary to the normal "desirable" design criteria, substantial lengths of roadway traversing very environmentally sensitive areas would have been impacted if this lessor standard was not used.

Route 50 in the vicinity of Seaville could not reasonably be reconstructed for a design speed of 60 miles per hour. Substantial damage to adjacent residential and commercial properties would have been required. The only reasonable solution to provide for this increased design speed would have been the construction of a significant bypass. This was deemed impractical and therefore a reduced design speed of 50 miles per hour was used for Route 50 between Cape May County Route 616 and Route 9.

No horizontal curves along Route 49 and three (3) curves along Route 50 required acquisition of right-of-way to improve to the specified design standards. Seventeen (17) and sixteen (16) horizontal curves along Route 49 and Route 50 respectively require reconstruction but do not need acquisition of additional right-of-way. Two (2) and five (5) of these horizontal curves within Route 49 and 50 respectively are within sections of the existing highways which would not be a part of the alternative route if the Tuckahoe Bypass were constructed. Accordingly, reconstruction costs for these curves have not been included within the cost estimation process.

Vertical Alignment

A significant number of the existing vertical curves located along the alternative route are substandard based upon the previously stated design speeds and in accordance with current design criteria. Along Route 49, 67 vertical curves are substandard, of which three (3) would fall outside the alternative route if Tuckahoe Bypass were constructed. Along Route 50, fifteen (15) vertical curves are substandard, of which nine (9) would be outside of the alternative route if the bypass were constructed. Only that reconstruction required to upgrade vertical alignment within the alternative route, assuming the Tuckahoe Bypass is constructed, is included within the cost estimation process.

Photo 7:

Existing Route 49 under existing Route 55. The blue line represents land service improvements for the Route 49/50 corridor alternates. Ramp improvements (not shown in blue) would also be required.

Photo 8:

Route 50/Route 9 intersection (foreground) and connection to the Garden State Parkway. The Route 50/9 intersection would remain "at-grade" under alternate 7, but would be reconstructed as a "grade-separated" intersection as alternate 7A.

Tuckahoe Bypass

Due to the close proximity of commercial and residential properties to both Route 49 and Route 50 in the vicinity of their intersection and the historic nature of many of these properties, a bypass of Tuckahoe was studied. In order to minimize impact to the relatively undisturbed nature of the land surrounding the town of Tuckahoe, the bypass was generally located parallel to the existing north-south railroad tracks west of Tuckahoe. To minimize the number of costly crossings of these existing tracks, the westerly route was also preferred.

The bypass crosses over County Route 557 and an existing rail line west of Tuckahoe. The grade separation at the Route 557 crossing is necessary because the bypass profile cannot be brought back down to existing grade due to the close proximity of the rail line. An interchange with extended Tuckahoe Road (Co. Rt. 631) is provided due to the significant turning traffic volume from Route 50 southbound to Route 631 eastbound as well as the reverse movement. At the southerly end of the bypass, Route 50 is in part redefined as a frontage road or abandoned. Relocation of the northern end of Cedar Avenue and construction of an extended frontage road adjacent to the bypass/Route 631 interchange are also assumed. At grade intersections with Cedar Lane and Tuckahoe-Mount Pleasant Road as well as reconstruction of the Route 50/Route 631 intersection will be required.

Route 55/49 Interchange Improvements

The design objective at the existing interchange of the Route 55 Freeway and Route 49 was to provide a direct connecting ramp from Route 55 southbound to Route 49 eastbound to facilitate the use of the Route 49/50 alternative route (see photo 7, page 26). In order to provide the direct connection loop ramp from Route 55 southbound to Route 49 eastbound, the existing finger ramp from Route 49 eastbound to Route 55 southbound must be relocated. The existing Route 50 westbound ramp to Route 55 southbound ramp is removed due to insufficient weave distance between adjacent on and off ramps on Route 55. To reduce the number of intersection points along Route 49 in the vicinity of the new Route 55 southbound ramp terminals, the existing ramp from Route 55 southbound to Route 49 is removed. The new Route 55 southbound off ramp should adequately serve both east and westbound Route 49 traffic. The existing Route 49 westbound to Route 55 northbound ramp is improved to meet current design criteria with resultant impacts to Greissenger Avenue and Burns Road.

Routes 50/9 Intersection Improvements

Two (2) levels of intersection improvement were considered, both of which orientate Route 50 toward the Garden State Parkway and eliminate the existing "cut off" currently present at the southwest quadrant of the existing intersection (see photo 8, page 26). To remove the existing angle point at the terminus of the Garden State Parkway Connector alignment at Route 50, a 5,200 ft. radius is provided for realigned Route 50. The radius ties into the Parkway Connector tangent alignment and compounds into the existing 1,433 ft. radius along Route 50.

The first level of improvement (alternate 7A) considered provides a grade separated interchange. To provide sufficient room for acceleration and deceleration lanes along Route 50 prior to existing ramps at the Parkway, all ramps are assumed to be on the west side of Route 9. The loop-finger ramp combination at the northwest quadrant will potentially impact an historic site. Existing access for the shopping at the northeast quadrant should be realigned opposite the terminus of these ramps along Route 9. At the southwest quadrant, the ramps will require the demolition of several dwellings and businesses. Based upon the current and proposed State Highway Access Code regulations, it appears that access to Route 50 must be denied on both sides of the highway throughout the vicinity of the acceleration and deceleration lanes. This would mean that numerous properties along Route 50 would be affected. Widening along Route 9 provides left turn slots into the Route 50 ramps. Along Route 9 southbound, an auxiliary lane for right turns to and from Route 50 ramps was anticipated.

The second level of improvement (alternate 7) studied is an at grade intersection. Two (2) lanes are provided in each direction of both Routes 50 and 9 with opposing left turns slots.

Typical Intersection Improvements

For purposes of estimating necessary construction costs, it was assumed that certain typical intersection improvements would be performed. Lacking traffic counts on which to base these improvements, the typical improvement was assumed to consist of signalization and widening of the shoulders to fifteen (15) ft. for use as auxiliary lanes. No exclusive left turn lanes were assumed. Intersections of Route 49 with the Cumberland County Routes 671, 646, and 644; Cape May County Routes 548 and 617; and Mays Landing Road were estimated to be improved. Route 50 intersections with Cape May County Routes 631, 610 and 616 were assumed to be similarly improved.

APPENDIX A

Location Maps

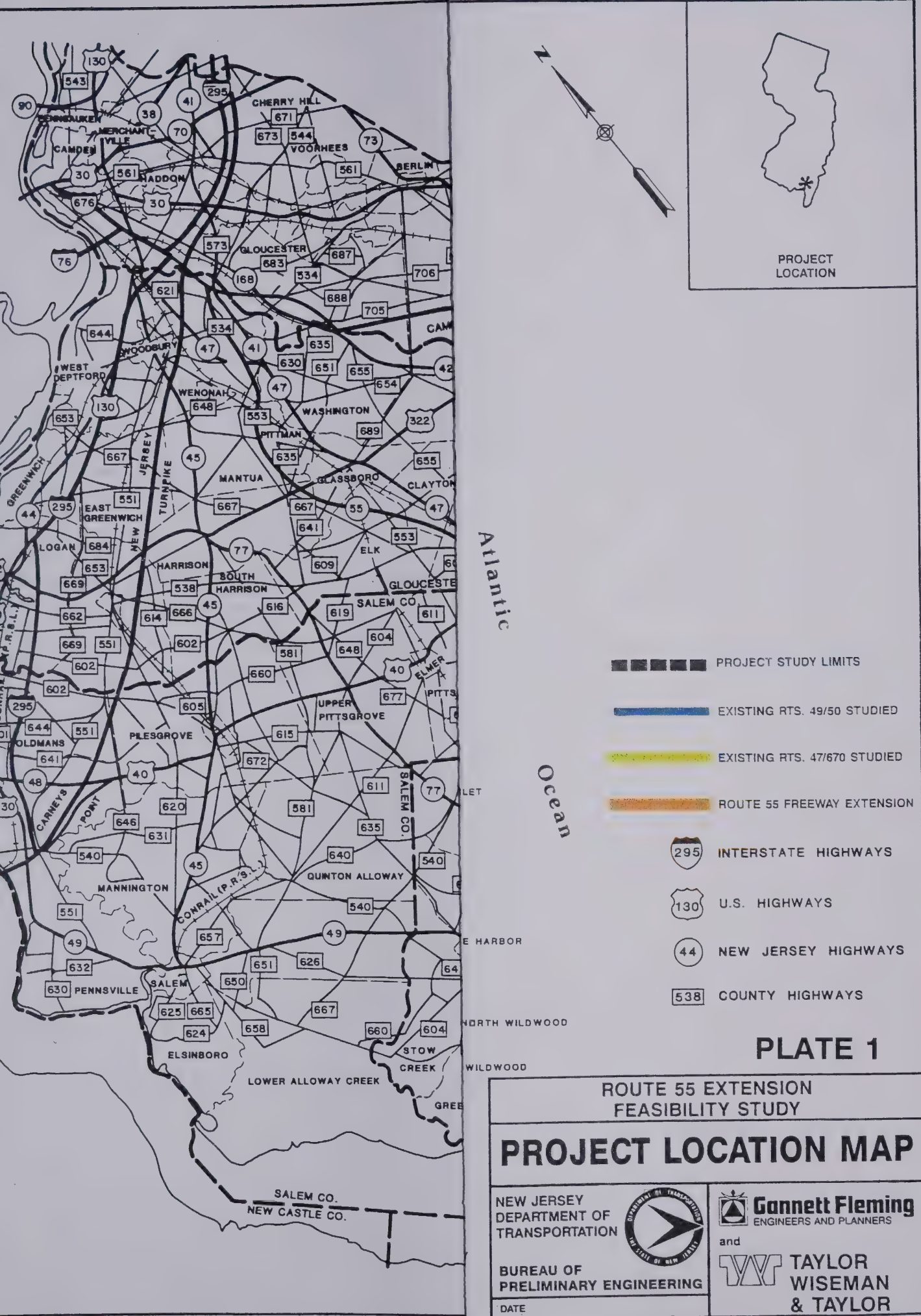


PLATE 1

ROUTE 55 EXTENSION
FEASIBILITY STUDY

PROJECT LOCATION MAP

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF PRELIMINARY ENGINEERING

DATE

Gannett Fleming
ENGINEERS AND PLANNERS

and

TAYLOR WISEMAN & TAYLOR

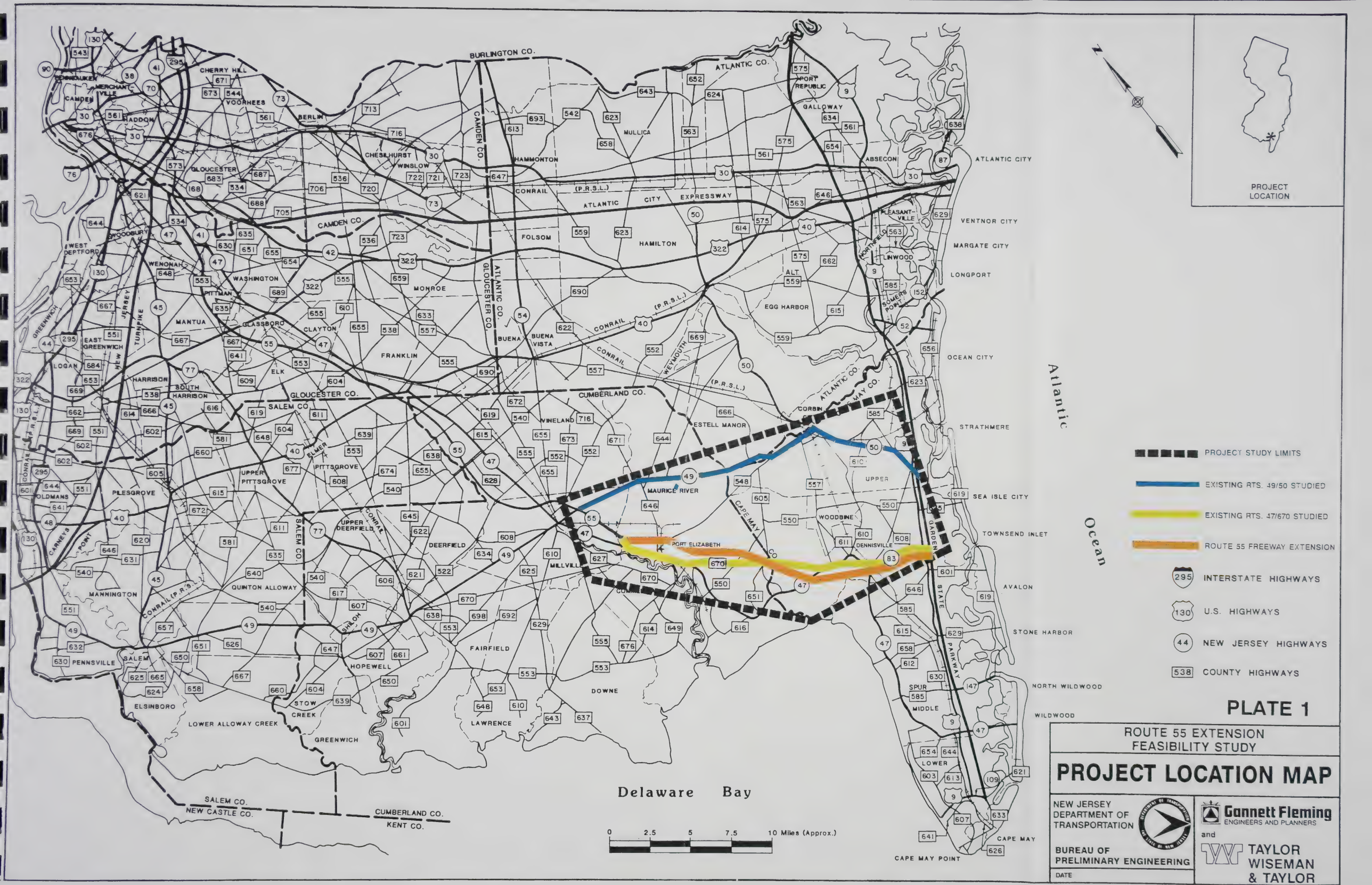


PLATE 1

ROUTE 55 EXTENSION
FEASIBILITY STUDY

PROJECT LOCATION MAP

NEW JERSEY DEPARTMENT OF TRANSPORTATION

BUREAU OF PRELIMINARY ENGINEERING

DATE

Gannett Fleming
ENGINEERS AND PLANNERS

and

TAYLOR WISEMAN & TAYLOR

County Boundary

City and/or Township Boundary

Primary Roads

Primary Roads Under Consideration for Route Alternatives

Streams, Lakes, Ponds

Railroad

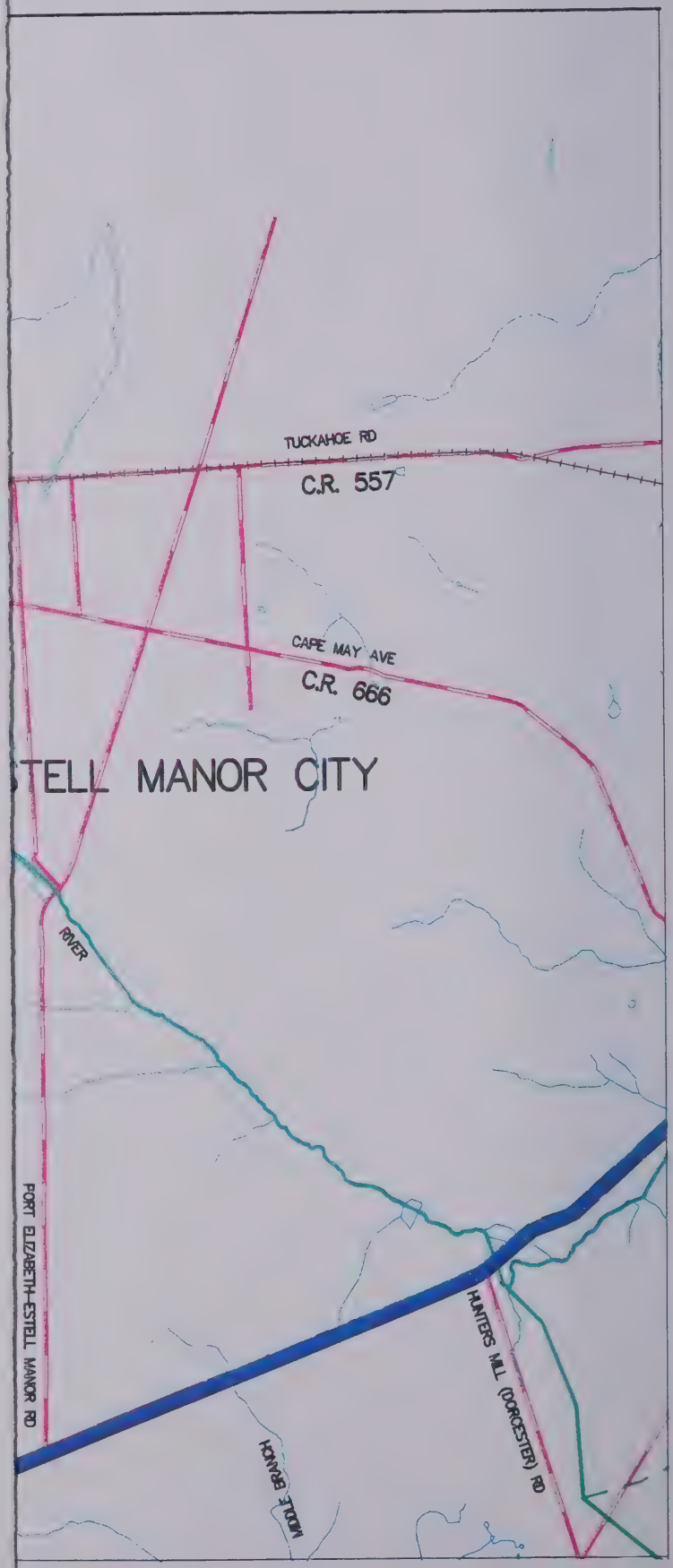
Old Railroad Grade

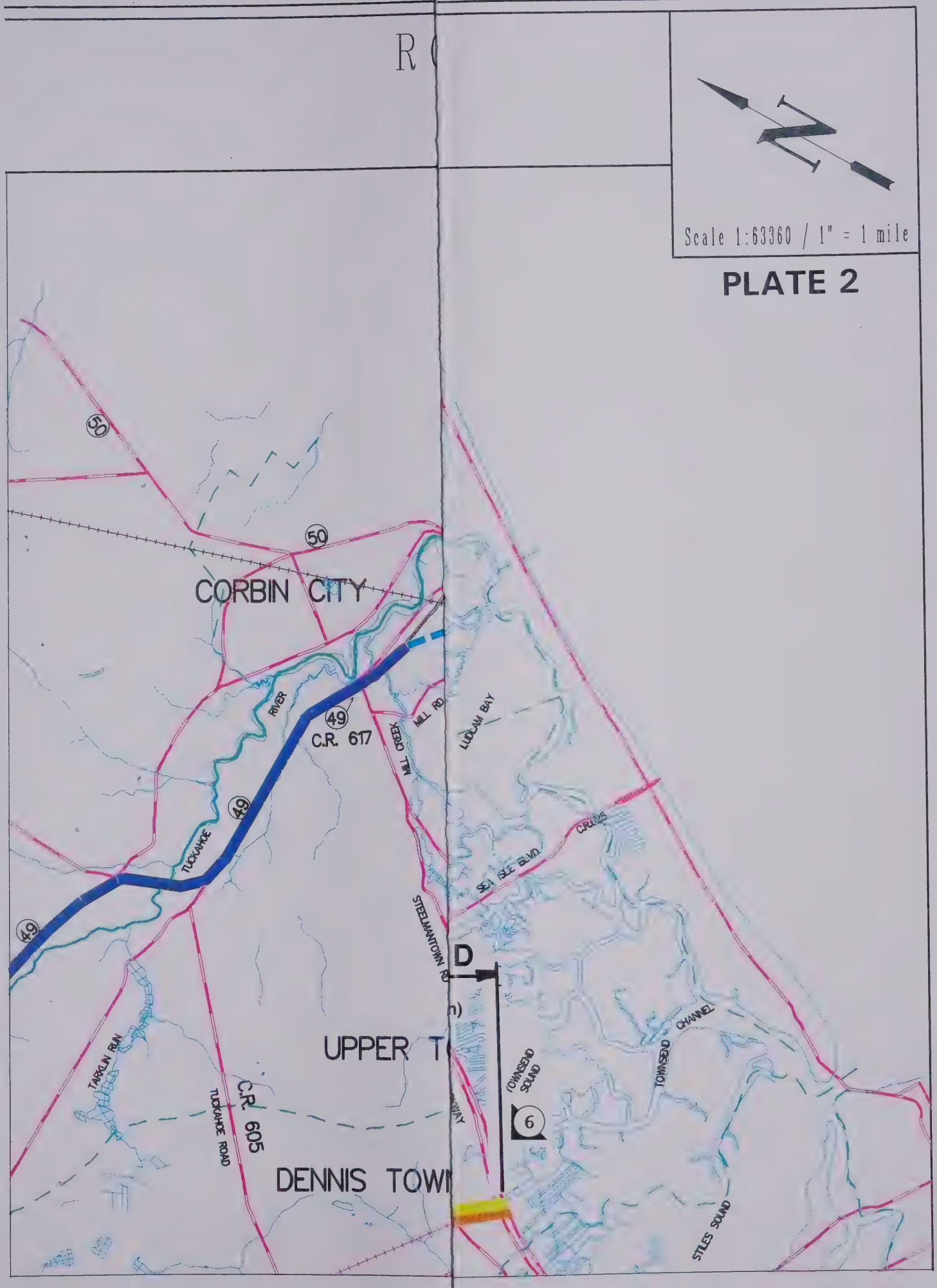
Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

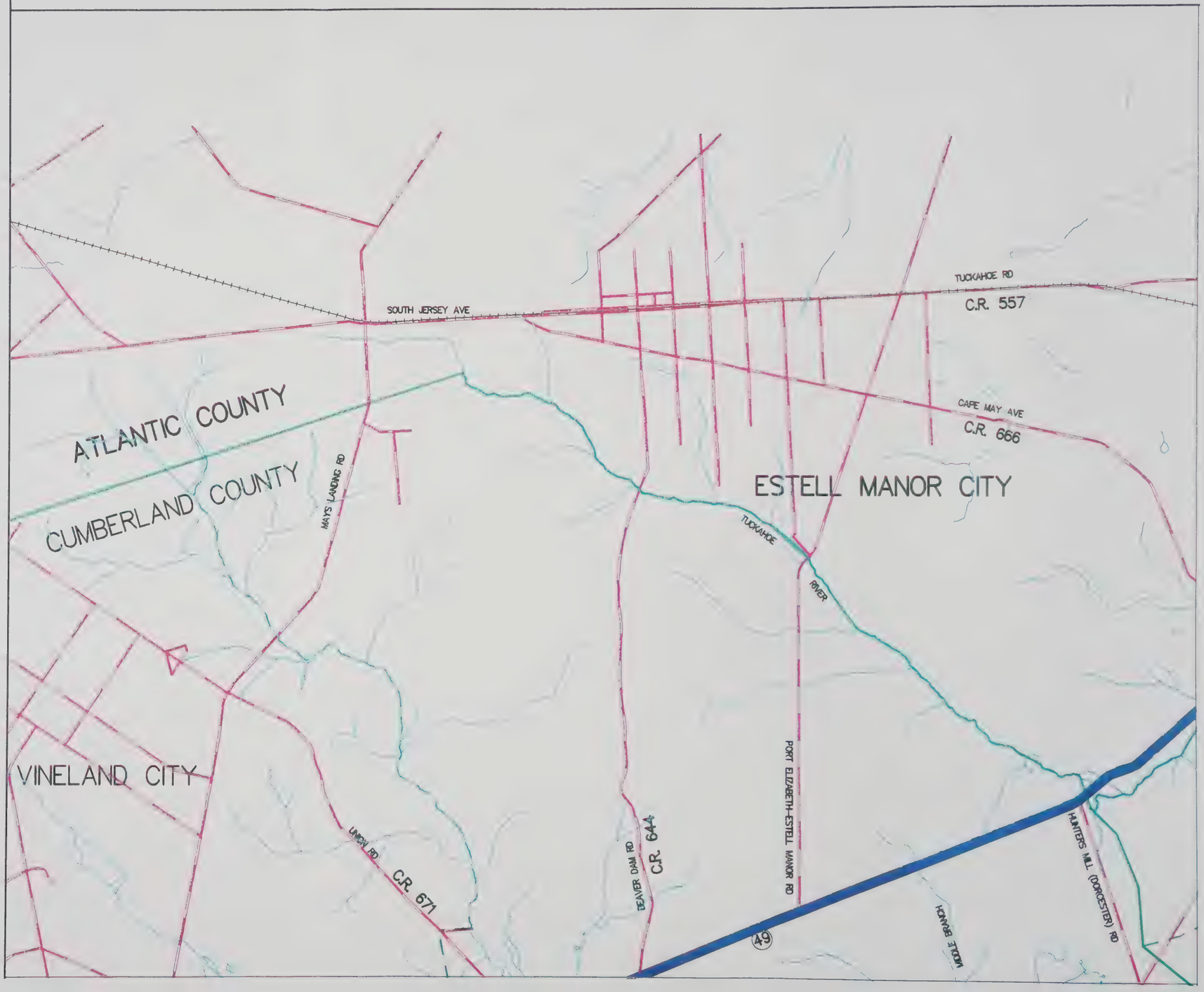
5 Indicates Photo Location, Direction, and Number




Scale 1:63360 / 1" = 1 mile
PLATE 2
CORBIN CITY
50
49
C.R. 617
RIVER
MILL CREEK
MILL RD
LUDLAM BAY
C.R. 625
SEA ISLE BLVD
TUCKAHOE
STEELMANTOWN RD
D
UPPER T
TARKLIN RUN
TUCKAHOE ROAD
C.R. 605
DENNIS TOWN
TOWNSEND SOUND
TOWNSEND CHANNEL
6
STILES SOUND

BASE MAP

- County Boundary
- City and/or Township Boundary
- Primary Roads
- Primary Roads Under Consideration for Route Alternatives
- Streams, Lakes, Ponds
- Railroad
- Old Railroad Grade
- Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)
- Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)
- Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)
- (5) Indicates Photo Location, Direction, and Number



ROUTE 55 EXTENSION STUDY

Scale 1:63360 / 1" = 1 mile

PLATE 2

CORBIN CITY

CAPE MAY COUNTY

UPPER TOWNSHIP

DENNIS TOWNSHIP

WOODBINE

BUTTER RD
C.R. 637

U.S. RTE 9

GARDEN STATE PARKWAY

NEW BRIDGE ROAD
C.R. 616

TUCKAHOE RD
C.R. 631

PETERSBURG AVE

C.R. 557

MILL RD

MILL CREEK

TUCKAHOE RIVER

C.R. 617

TUCKAHOE

STEELMANTOWN RD

DENNISVILLE-PETERSBURG RD
C.R. 610

CEDAR SWAMP CREEK

GRASS SANDBAR

FLAT CREEK

MAIN CHANNEL

LUDLAM BAY

SEA ISLE BLVD

CR 625

WOODBINE-OCEAN VIEW RD
C.R. 550

CORSONS TAVERN ROAD
C.R. 628

GARDEN STATE PARKWAY

TOWNSEND SOUND

TOWNSEND CHANNEL

STILES SOUND

KINGS HIGHWAY
C.R. 608

HAGAN ROAD

WOODBINE AVE

FIDLER ROAD

WOODBINE RD
C.R. 557

C.R. 610

TUCKAHOE ROAD
C.R. 605

TARKLIN RUN

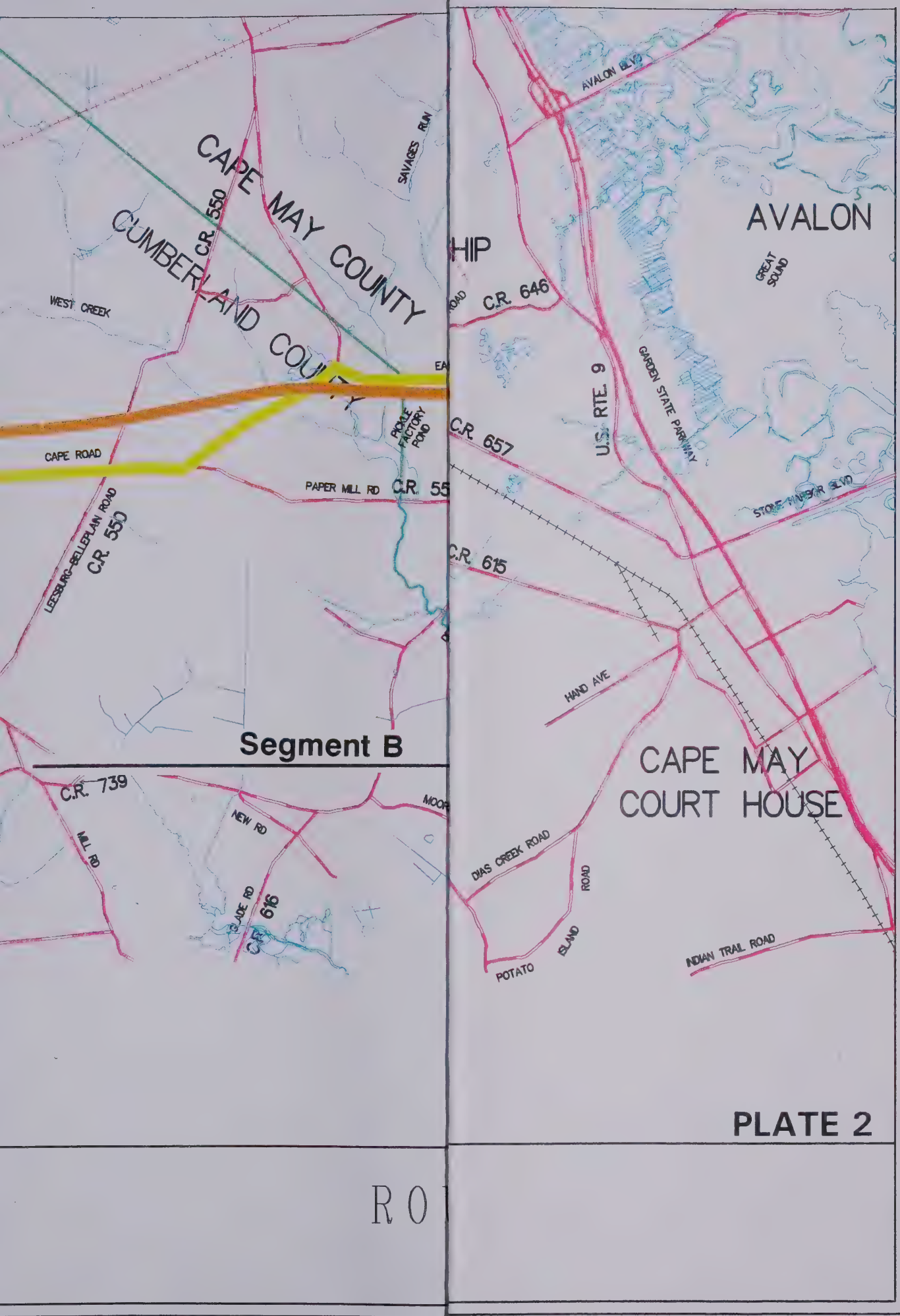
Segment D

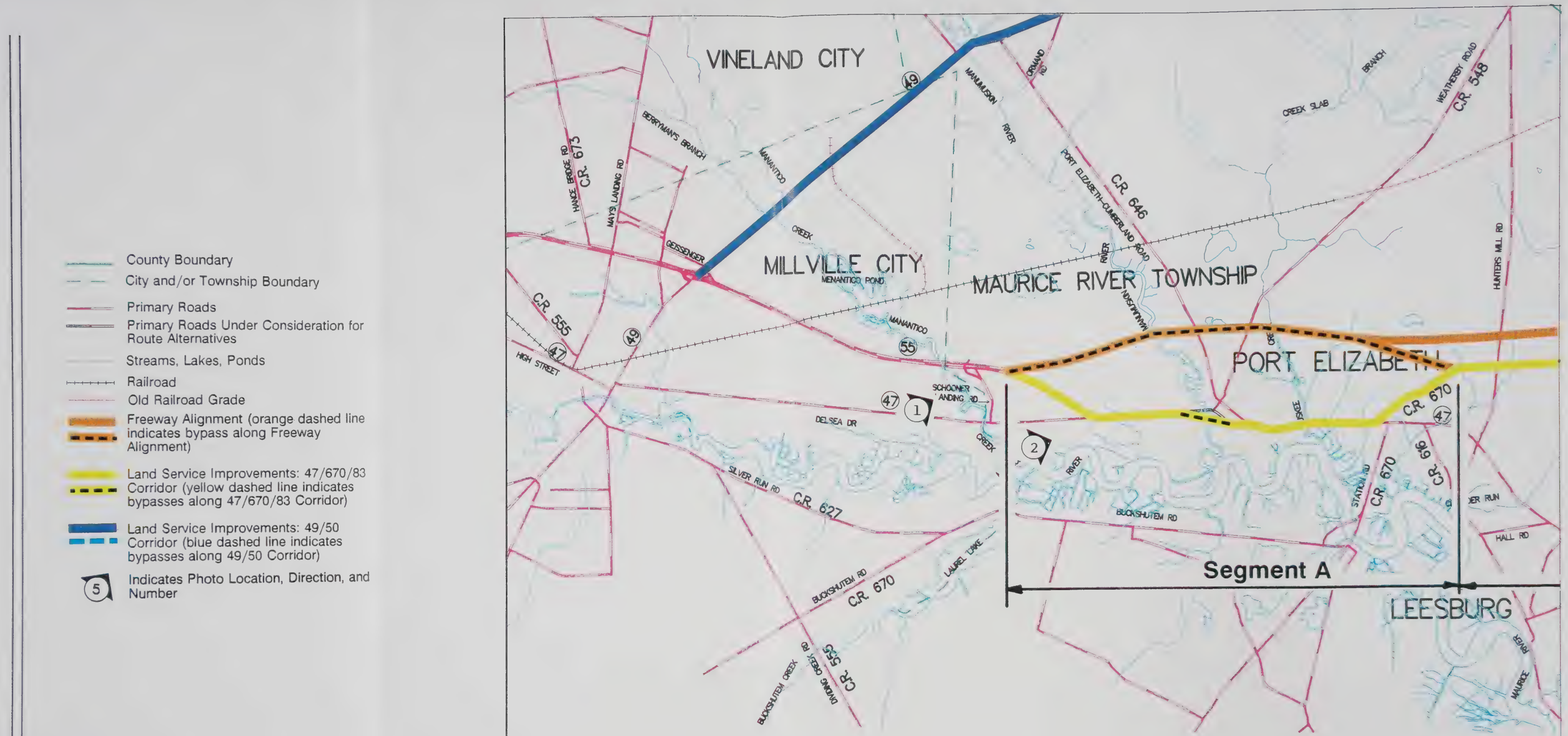
(see next page for continuation)

50 49 83 6

- County Boundary
- City and/or Township Boundary
- Primary Roads
- Primary Roads Under Consideration for Route Alternatives
- Streams, Lakes, Ponds
- Railroad
- Old Railroad Grade
- Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)
- Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)
- Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)
- (5) Indicates Photo Location, Direction, and Number

Gannett


CAPE MAY COUNTY
CUMBERLAND COUNTY
C.R. 550
SAVAGES RUN
WEST CREEK
CAPE ROAD
PAPER MILL RD
C.R. 55
LEESBURG-BELLEPLAIN ROAD
C.R. 550
PICKLE FACTORY POND
C.R. 657
U.S. RTE. 9
GARDEN STATE PARKWAY
C.R. 646
AVALON BLVD
AVALON
GREAT SOUND
STONE HARBOR BLVD
C.R. 615
HAND AVE
CAPE MAY COURT HOUSE
DIAS CREEK ROAD
POTATO ISLAND ROAD
INDIAN TRAIL ROAD
C.R. 739
MILL RD
NEW RD
BLADE RD
C.R. 616
Segment B
PLATE 2



County Boundary

City and/or Township Boundary

Primary Roads

Primary Roads Under Consideration for Route Alternatives

Streams, Lakes, Ponds

Railroad

Old Railroad Grade

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

(5) Indicates Photo Location, Direction, and Number

Gannett Fleming, Inc.

Scale 1:63360 / 1" = 1 mile

BASE MAP

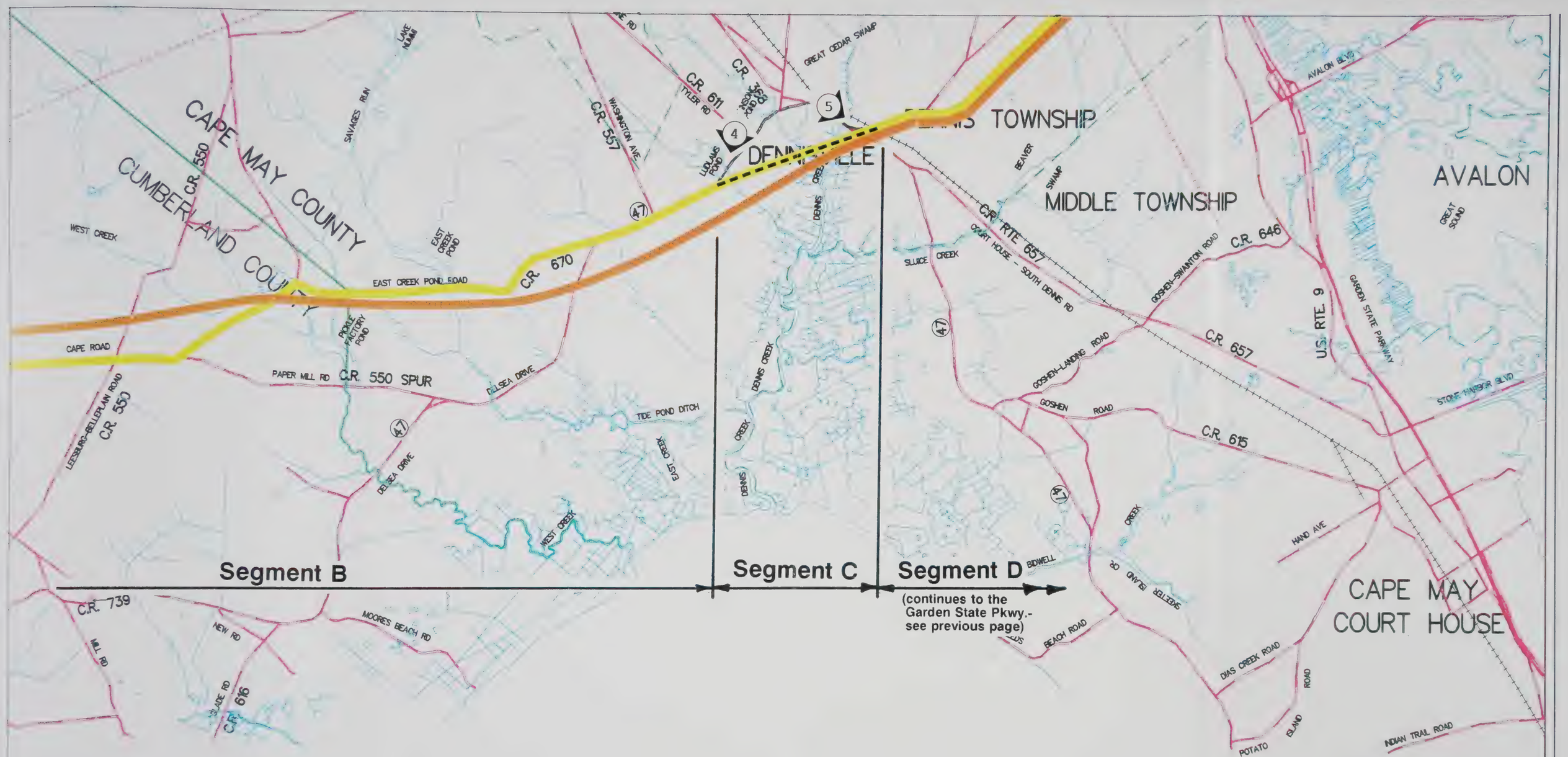


PLATE 2

ROUTE 55 EXTENSION STUDY

APPENDIX B

Environmental Constraint Maps

E

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

BUILDING OR STRUCTURE OF INTEREST IDENTIFIED BY NJDOT FIELD SURVEY

0106-L9 NJHPO SURVEY DESIGNATION - 9TH PROPERTY LISTED

NR NATIONAL REGISTER PROPERTY

0507-153 ON-SYSTEM BRIDGE WITH STRUCTURE NUMBER

NR NATIONAL REGISTER HISTORIC DISTRICT

BUILT-UP AREA NOT SURVEYED ON A BUILDING-BY-BUILDING BASIS

NOTE: BOUNDARIES OF INDIVIDUAL SITES HAVE NOT BEEN DETERMINED. HISTORIC BUILDINGS MAY HAVE ASSOCIATED ARCHAEOLOGICAL FEATURES.

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

TUCKAHOE RD
C.R. 557

CAPE MAY AVE
C.R. 666

TELL MANOR CITY

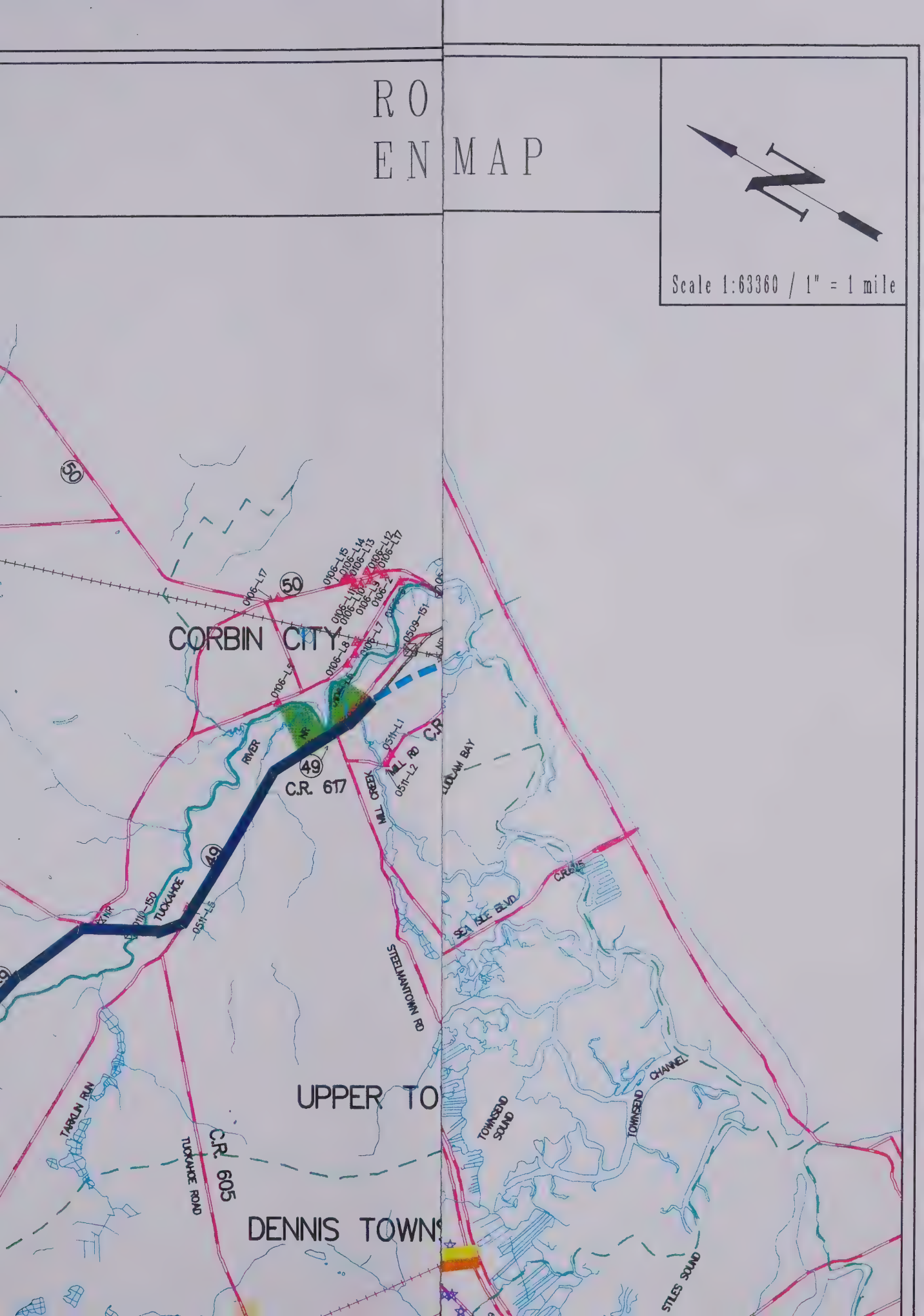
RIVER

PORT ELIZABETH TELL MANOR RD

HUNTERS MILL (DORCHESTER) RD

MIDDLE BRANCH

RO
EN MAP


Scale 1:63360 / 1" = 1 mile
CORBIN CITY
C.R. 617
TUCKAHOE
TUCKAHOE ROAD
C.R. 605
STEELMANTOWN RD
SEA ISLE BLVD
TOWNSEND SOUND
TOWNSEND CHANNEL
STILES SOUND
TARKLIN RUN
UPPER TO
DENNIS TOWN
50
49

HISTORIC ARCHITECTURE

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

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0106-L9 NJHPO SURVEY DESIGNATION - 9TH PROPERTY LISTED

NR NATIONAL REGISTER PROPERTY

0507-153 ON-SYSTEM BRIDGE WITH STRUCTURE NUMBER

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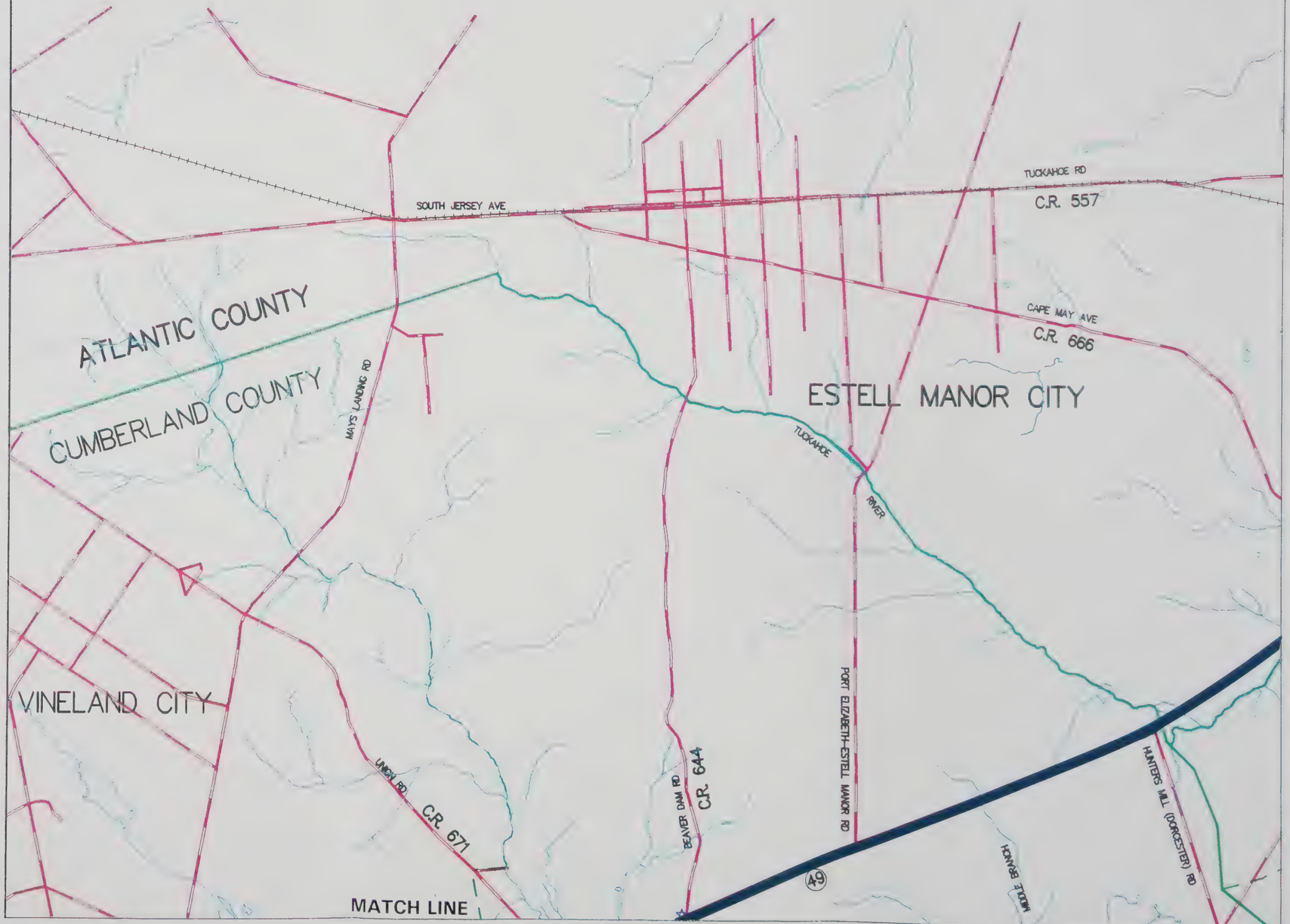


ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

Scale 1:63360 / 1" = 1 mile

CAPE MAY COUNTY

CORBIN CITY

UPPER TOWNSHIP

DENNIS TOWNSHIP

WOODBINE

BUTTER RD
C.R. 637

TUCKAHOE RD
C.R. 631

NEW BRIDGE ROAD
C.R. 616

U.S. RTE. 9

GARDEN STATE PARKWAY

C.R. 557

C.R. 617

C.R. 610

C.R. 550

C.R. 605

C.R. 628

C.R. 608

DENNISVILLE-PETERSBURG RD

WOODBINE-OCEAN VIEW RD

CORSONS TAVERN ROAD

KINGS HIGHWAY

HAGAN ROAD

FIDLER ROAD

WOODBINE AVE.

STEELMANTOWN RD

TUCKAHOE ROAD

CEDAR SWAMP CREEK

FLAT CREEK

LUDLAM BAY

TOWNSEND SOUND

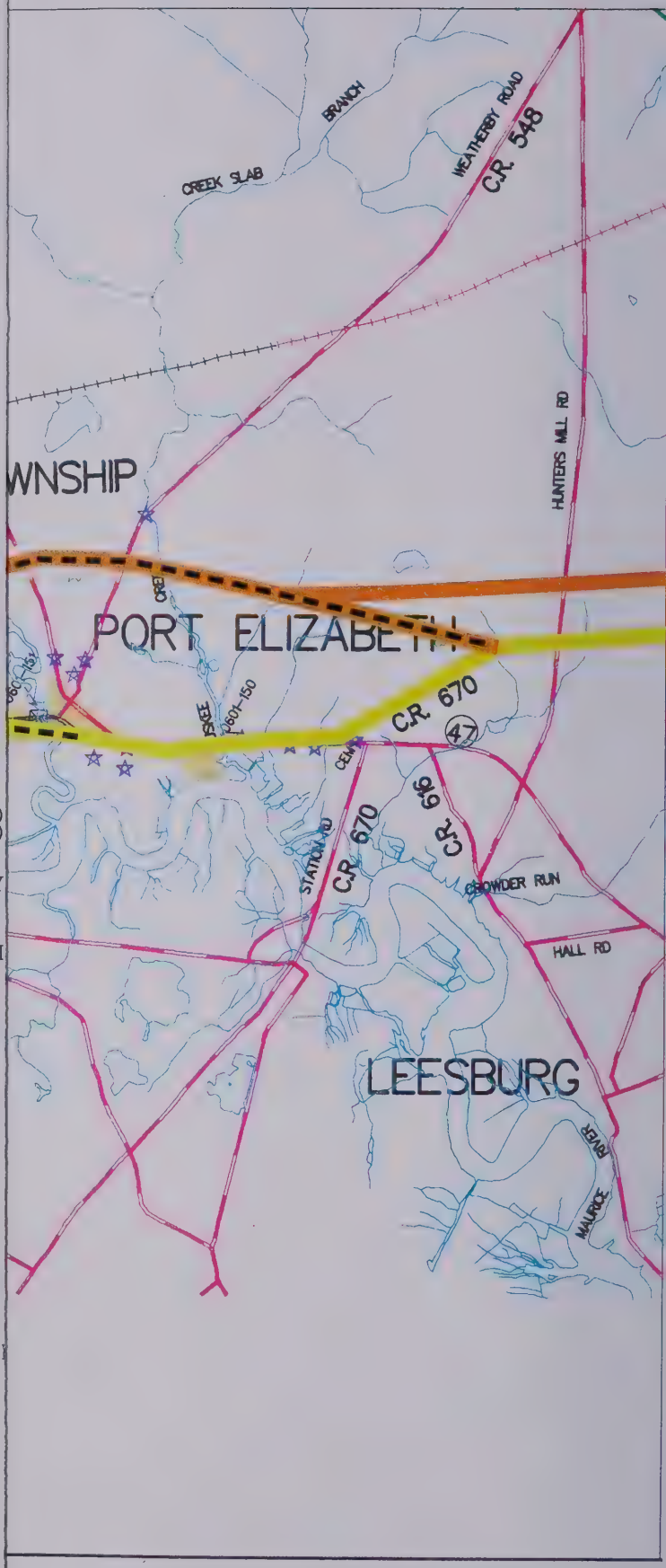
TOWNSEND CHANNEL

STILES SOUND

SEA ISLE BLVD.

MAGNOLIA LANE

MATCH LINE



Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

BUILDING OR STRUCTURE OF INTEREST IDENTIFIED BY NJDOT FIELD SURVEY

0106-L9 NJHPO SURVEY DESIGNATIO - 9TH PROPERTY LISTED

NR NATIONAL REGISTER PROPERTY

0507-153 ON-SYSTEM BRIDGE WITH STRUCTURE NUMBER

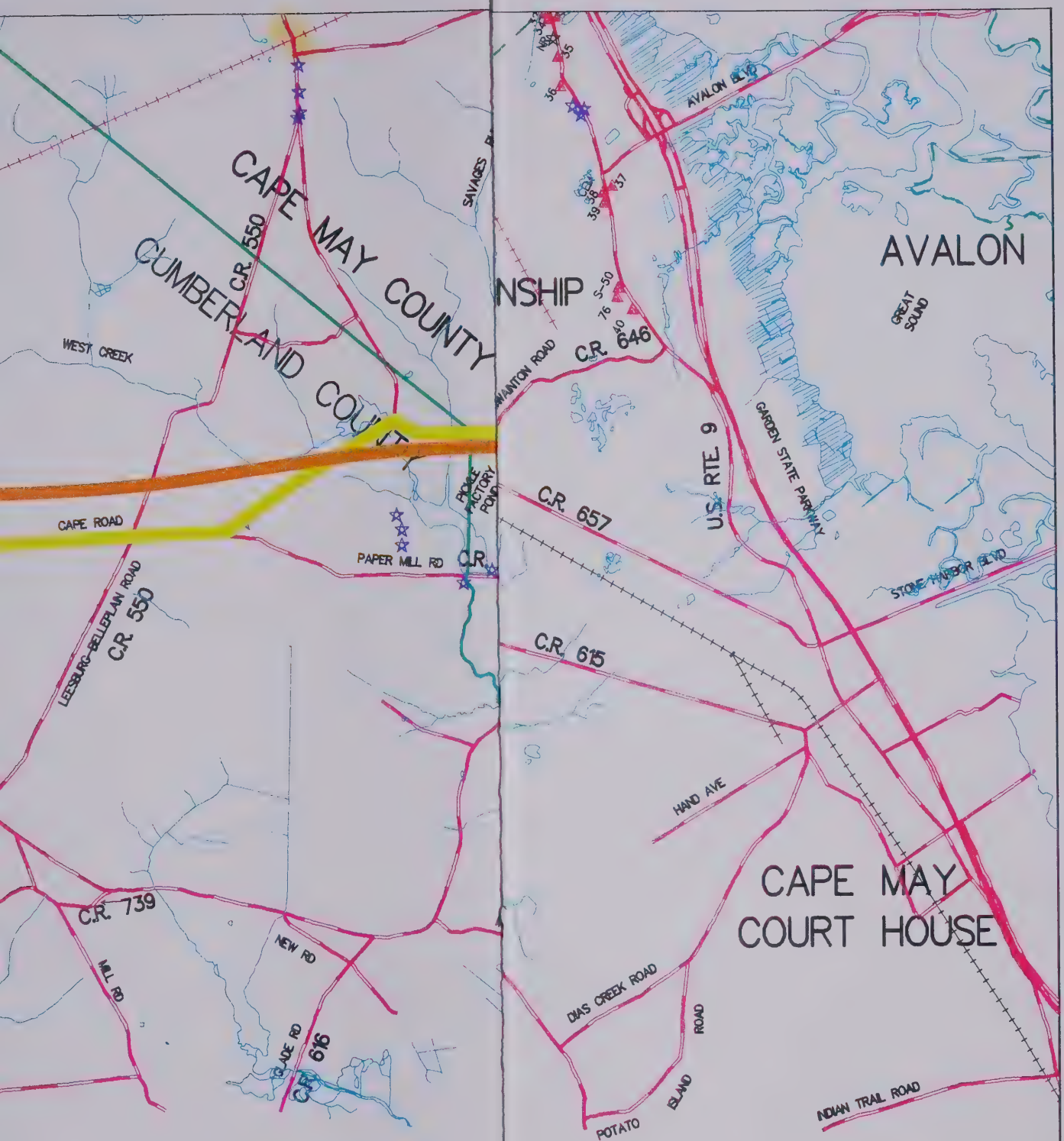
NR NATIONAL REGISTER HISTORIC DISTRICT

BUILT-UP AREA NOT SURVEYED ON A BUILDING-BY-BUILDING BASIS

NOTE: BOUNDARIES OF INDIVIDUAL SITES NOT BEEN DETERMINED. HISTORIC BUIL MAY HAVE ASSOCIATED ARCHAEOLOGICAL FEATURES.

E

Gannet


CAPE MAY COUNTY
CUMBERLAND COUNTY
NSHIP
AVALON
AVALON BLVD
GREAT SOUND
WEST CREEK
C.R. 550
C.R. 646
AVANTON ROAD
C.R. 657
U.S. RTE. 9
GARDEN STATE PARKWAY
STONE HARBOR BLVD
CAPE ROAD
PAPER MILL RD
C.R.
ROUTE FACTORY ROAD
LEESBURG-BELLEPLAIN ROAD
C.R. 550
C.R. 615
HAND AVE
CAPE MAY
COURT HOUSE
C.R. 739
NEW RD
MILL RD
GLADE RD
C.R. 616
DIAS CREEK ROAD
POTATO
ISLAND
ROAD
INDIAN TRAIL ROAD

RO
EN MAP

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

☆ BUILDING OR STRUCTURE OF INTEREST IDENTIFIED BY NJDOT FIELD SURVEY

▲ 0106-L9 NJHPO SURVEY DESIGNATION - 9TH PROPERTY LISTED

☆ NR NATIONAL REGISTER PROPERTY

⊠ 0507-153 ON-SYSTEM BRIDGE WITH STRUCTURE NUMBER

NR NATIONAL REGISTER HISTORIC DISTRICT

BUILT-UP AREA NOT SURVEYED ON A BUILDING-BY-BUILDING BASIS

NOTE: BOUNDARIES OF INDIVIDUAL SITES HAVE NOT BEEN DETERMINED. HISTORIC BUILDINGS MAY HAVE ASSOCIATED ARCHAEOLOGICAL FEATURES.

Gannett Fleming, Inc.

MATCH LINE

VINELAND CITY

MILLVILLE CITY

MENANTICO POND

MAURICE RIVER TOWNSHIP

PORT ELIZABETH

LEESBURG

C.R. 673

C.R. 555

C.R. 646

C.R. 548

C.R. 627

C.R. 670

C.R. 649

BERRYMAN'S BRANCH

MAYS LANDING RD

GERSSENGER

MANANTICO CREEK

MANUMUSKIN RIVER

ORCHARD RD

CREEK SLAB BRANCH

WEATHERBY ROAD

PORT ELIZABETH-CUMBERLAND ROAD

HUNTERS MILL RD

HIGH STREET

DELSEA DR

SCHOONER LANDING RD

SILVER RUN RD

BUCKSHUTEM RD

LAUREL LANE

BUCKSHUTEM CREEK

DIVINE CREEK RD

STATION RD

CROWDER RUN

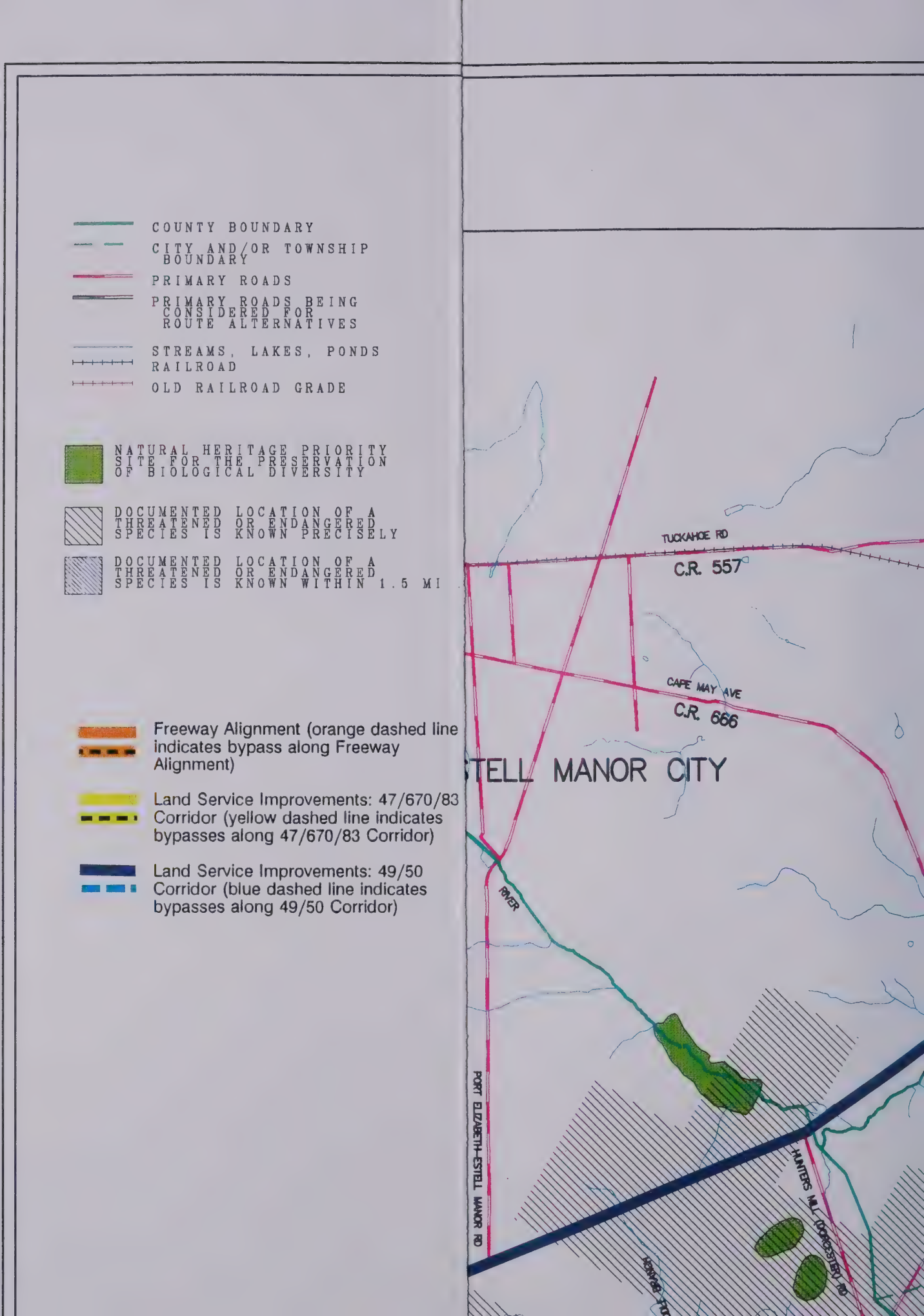
HALL RD

MAURICE RIVER

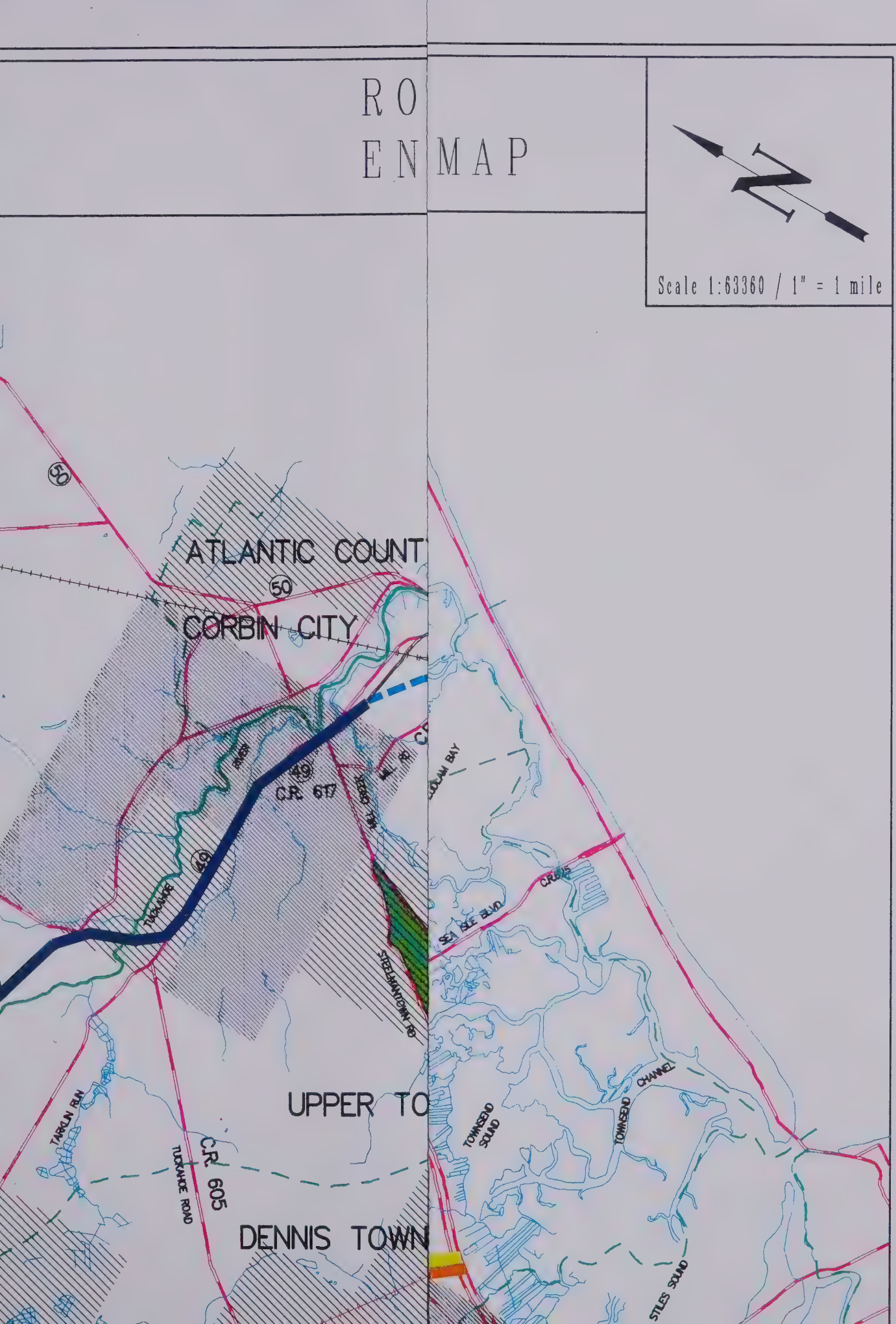
Scale 1:63360 / 1" = 1 mile

HISTORIC ARCHITECTURE

ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP


COUNTY BOUNDARY
CITY AND/OR TOWNSHIP BOUNDARY
PRIMARY ROADS
PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES
STREAMS, LAKES, PONDS
RAILROAD
OLD RAILROAD GRADE
NATURAL HERITAGE PRIORITY SITE FOR THE PRESERVATION OF BIOLOGICAL DIVERSITY
DOCUMENTED LOCATION OF A THREATENED OR ENDANGERED SPECIES IS KNOWN PRECISELY
DOCUMENTED LOCATION OF A THREATENED OR ENDANGERED SPECIES IS KNOWN WITHIN 1.5 MI
Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)
Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)
Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)
TUCKAHOE RD
C.R. 557
CAPE MAY AVE
C.R. 666
STELL MANOR CITY
RIVER
PORT ELIZABETH-ESTELL MANOR RD
HUNTERS MILL (OCEANVIEW) RD

RO
ENMAP


Scale 1:63360 / 1" = 1 mile
ATLANTIC COUNT
50
CORBIN CITY
50
49
C.R. 617
49
TUCKAHOE
TUCKAHOE RIVER
NEEDS TWP
C
SEA ISLE BLVD
C.R. 615
STEELMANTOWN RD
UPPER TO
TARKLIN RUN
TUCKAHOE ROAD
C.R. 605
DENNIS TOWN
TOWNSEND SOUND
TOWNSEND CHANNEL
STILES SOUND

ENDANGERED SPECIES

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS
RAILROAD

OLD RAILROAD GRADE

NATURAL HERITAGE PRIORITY SITE FOR THE PRESERVATION OF BIOLOGICAL DIVERSITY

DOCUMENTED LOCATION OF A THREATENED OR ENDANGERED SPECIES IS KNOWN PRECISELY

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Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

Scale 1:63360 / 1" = 1 mile

ATLANTIC COUNTY

CORBIN CITY

CAPE MAY COUNTY

UPPER TOWNSHIP

DENNIS TOWNSHIP

WOODBINE

MATCH LINE

BUTTER RD
C.R. 637

U.S. RTE 9

NEW BRIDGE ROAD
C.R. 616

TUCKAHOE RD
C.R. 631

C.R. 557

C.R. 610

C.R. 550

C.R. 605

C.R. 628

C.R. 628 SPUR

GARDEN STATE PARKWAY

CEDAR SWAMP CREEK

FLAT CREEK

MAIN CHANNEL

LUDLAM BAY

SEA ISLE BLVD.

CRUISE

MAGNOLIA LAKE

TOWNSEND SOUND

TOWNSEND CHANNEL

STILES SOUND

TARKILN RUN

TUCKAHOE ROAD

STEELMANTOWN RD

WOODBINE-OCEAN VIEW RD

FIDLER ROAD

DENNISVILLE - WOODBINE

DENNISVILLE-PETERSBURG RD

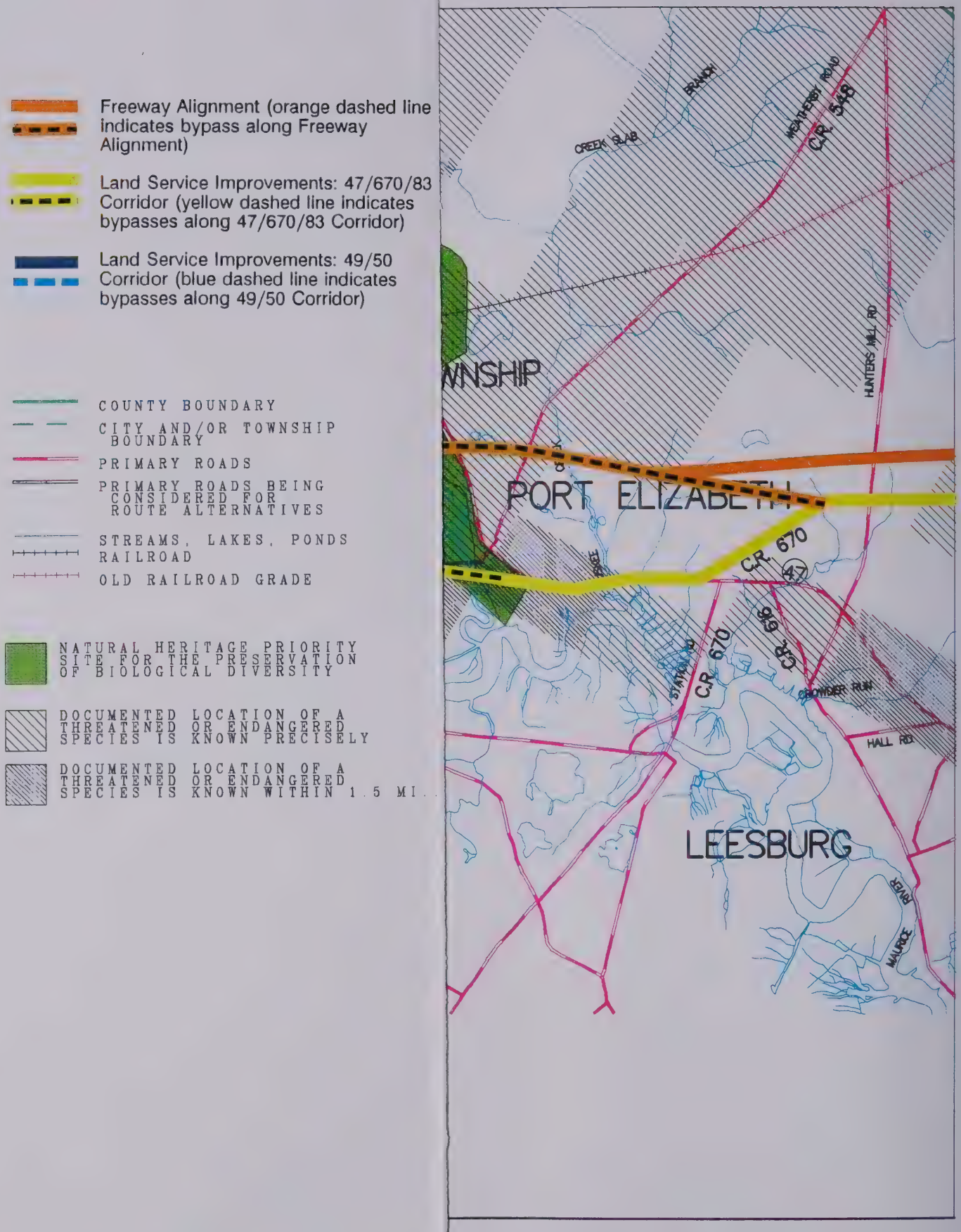
CORSONS TAVERN ROAD

ROUTE 9 NORTHBOUND

WOODBINE AVE

49

50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COUNTY BOUNDARY
CITY AND/OR TOWNSHIP BOUNDARY
PRIMARY ROADS
PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES
STREAMS, LAKES, PONDS
RAILROAD
OLD RAILROAD GRADE
NATURAL HERITAGE PRIORITY SITE FOR THE PRESERVATION OF BIOLOGICAL DIVERSITY
DOCUMENTED LOCATION OF A THREATENED OR ENDANGERED SPECIES IS KNOWN PRECISELY
DOCUMENTED LOCATION OF A THREATENED OR ENDANGERED SPECIES IS KNOWN WITHIN 1.5 MI.
MNSHIP
PORT ELIZABETH
LEESBURG
C.R. 548
MEATHERBY ROAD
HUNTERS MILL RD
C.R. 670
C.R. 649
HALL RD
RIVER
MAURICE
CROWDER RUN
CREEK
BRANCH
STATION RD
47

Gannett

CAPE MAY COUNTY
CUMBERLAND COUNTY
AVALON
AVALON BLVD
SAVAGES RUN
WEST CREEK
C.R. 550
C.R. 646
C.R. 657
C.R. 615
C.R. 739
C.R. 616
U.S. RTE. 9
GARDEN STATE PARKWAY
GREAT SOUND
CAPE ROAD
PAPER MILL RD
LEESBURG-BELLPLAIN ROAD
STONE HARBOR BLVD
HAND AVE
CAPE MAY COURT HOUSE
DIAS CREEK ROAD
POTATO ISLAND ROAD
INDIAN TRAIL ROAD
MILL RD
GLADE RD

R O

E N M A P

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

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COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS
RAILROAD

OLD RAILROAD GRADE

NATURAL HERITAGE PRIORITY SITE FOR THE PRESERVATION OF BIOLOGICAL DIVERSITY

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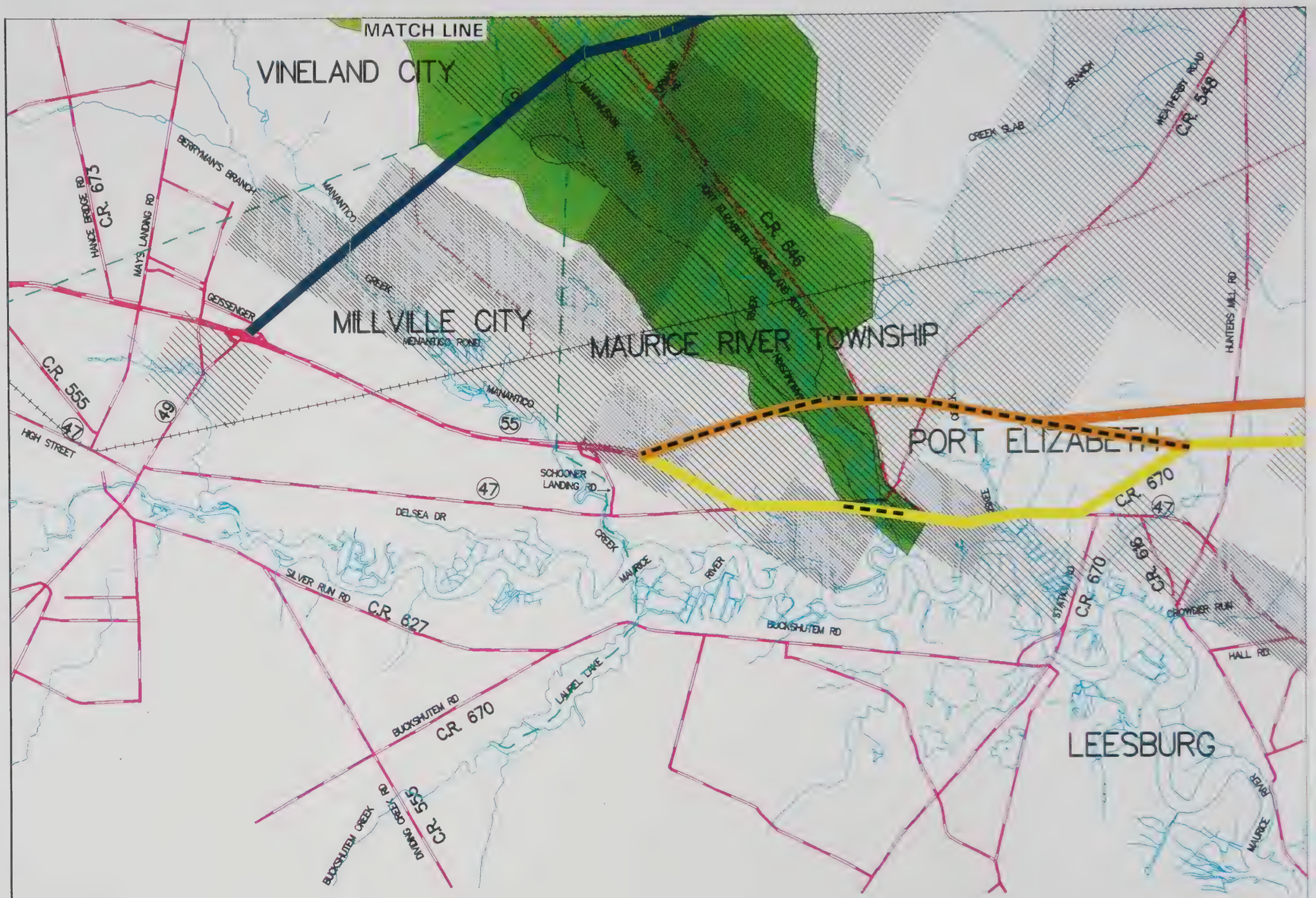

Gannett Fleming, Inc.

Scale 1:63360 / 1" = 1 mile

ENDANGERED SPECIES

ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

HIGH QUALITY WETLAND
There is a very large possibility that a threatened or endangered species is associated with these wetlands.

MEDIUM QUALITY WETLAND
There is a possibility that a threatened or endangered species is associated with these wetlands.

AVERAGE QUALITY WETLANDS
There is little possibility that a threatened or endangered species is associated with these wetlands.

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

RO
ENMAP

Scale 1:63360 / 1" = 1 mile

WETLAND EMPHASIS

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

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ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

Scale 1:63360 / 1" = 1 mile

ATLANTIC COUNTY
CORBIN CITY
CAPE MAY COUNTY
UPPER TOWNSHIP
DENNIS TOWNSHIP
WOODBINE
BUTTER RD
C.R. 637
U.S. RTE. 9
GARDEN STATE PARKWAY
NEW BRIDGE ROAD
C.R. 676
TUCKAHOE RD
C.R. 631
BETHESDA AVE
C.R. 557
MILL RD
C.R. 617
TUCKAHOE
STEELMANTOWN RD
DENNISVILLE-PETERSBURG RD
C.R. 610
CEDAR SWAMP CREEK
WOODBINE-OCEAN VIEW RD
C.R. 550
TARKLIN RUN
TUCKAHOE ROAD
C.R. 605
WOODBINE RD
C.R. 557
FIDLER ROAD
DENNISVILLE - WOODBINE
WOODBINE AVE.
C.R. 610
CORSONS TAVERN ROAD
C.R. 628
KING'S HIGHWAY
C.R. 608
MAGNOLIA LANE
GARDEN STATE PARKWAY
SEA ISLE BLVD.
C.R. 626
TOWNSEND SOUND
TOWNSEND CHANNEL
STILES SOUND
LUDLAM BAY
CORSONS SOUND
FLAT CREEK
CHANNEL
MATCH LINE
50
49
83

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

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CITY AND/OR TOWNSHIP BOUNDARY

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PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

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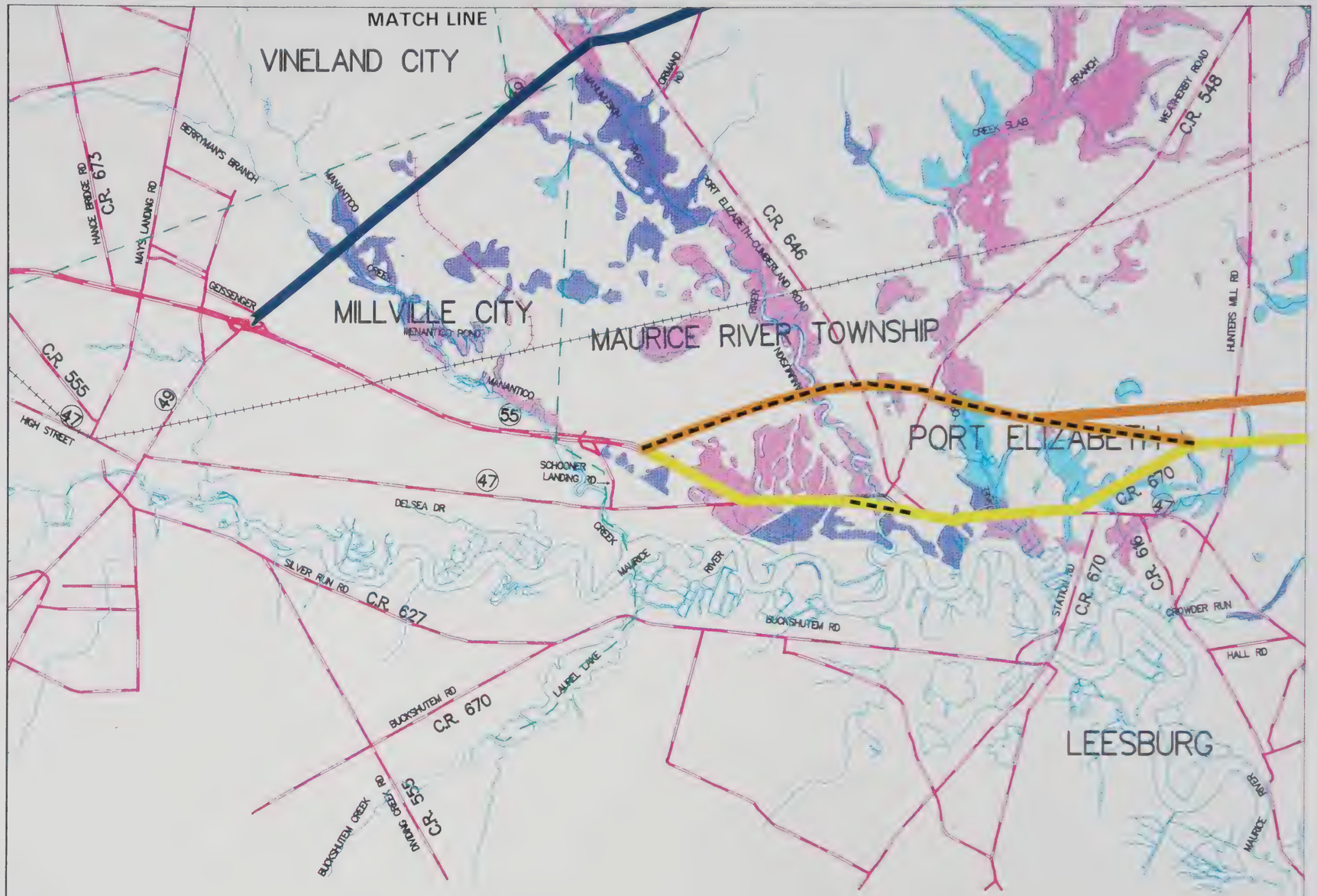
Gannett Fleming, Inc.



Scale 1:63360 / 1" = 1 mile

WETLAND EMPHASIS

ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

NJ PINELANDS - RURAL DEVELOPMENT AREA

NJ PINELANDS - WILD AND SCENIC CORRIDOR

NJ PINELANDS VILLAGE

CAFRA ZONE

NJ PINELANDS

OVERLAP OF CAFRA ZONE AND NATIONAL PINELANDS RESERVE

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

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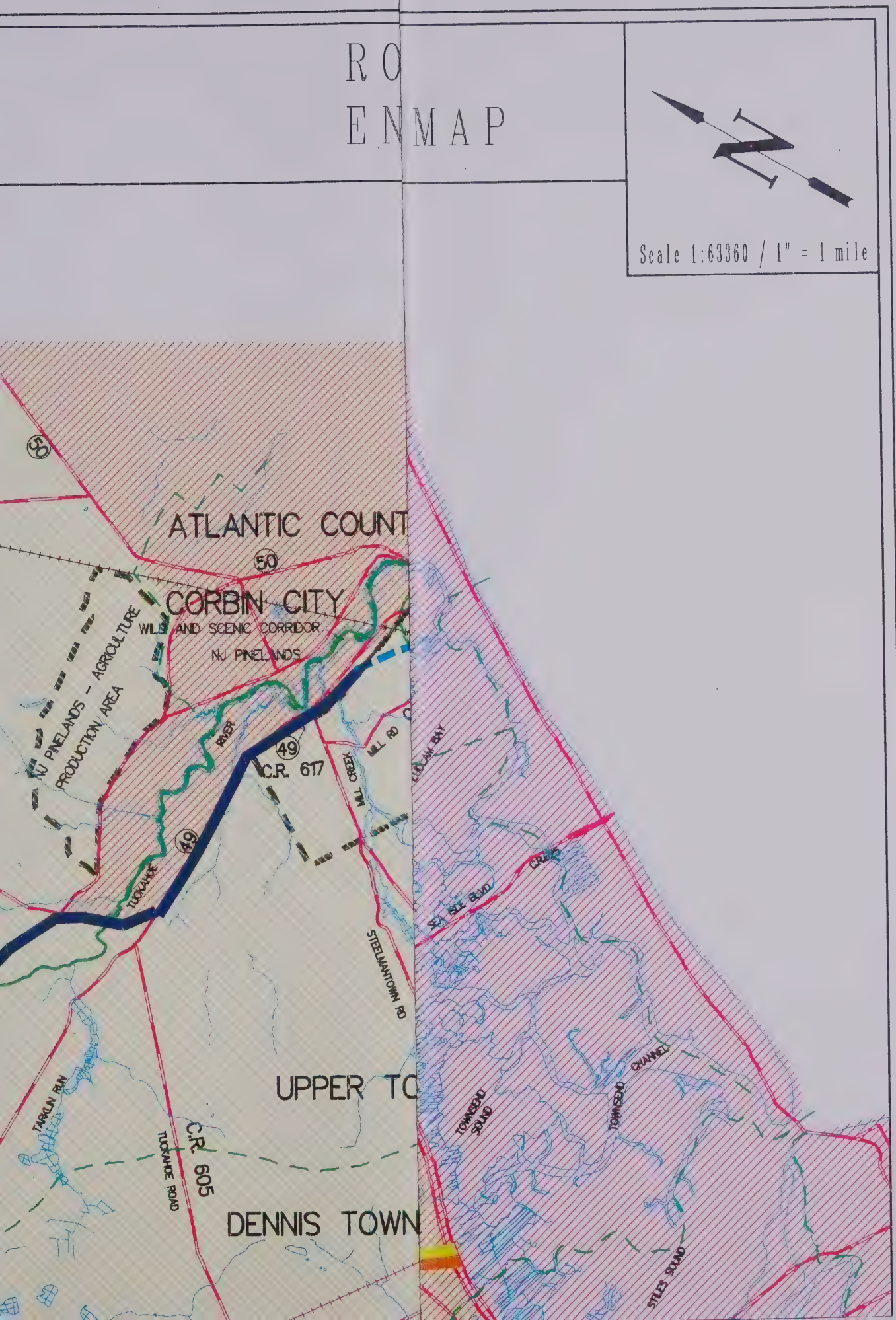
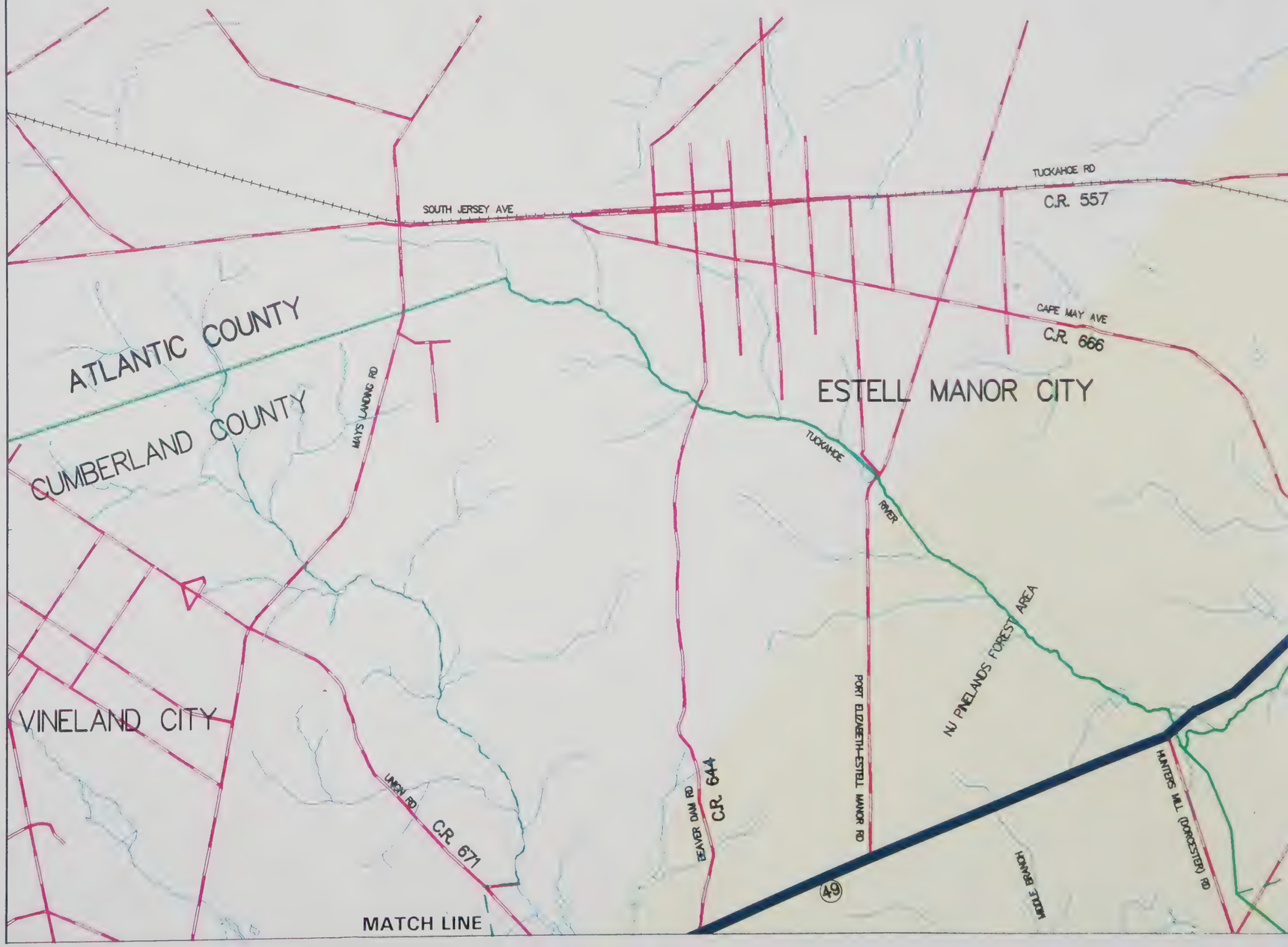

RO
ENMAP
Scale 1:63360 / 1" = 1 mile
ATLANTIC COUNT
50
CORBIN CITY
WLD AND SCENIC CORRIDOR
NJ PINELANDS
NJ PINELANDS - AGRICULTURE PRODUCTION AREA
49
C.R. 617
TUCKAHOE
49
MILL CREEK
MILL RD
CORSAIR BAY
C.R. 625
SEA ISLE BLVD
STEELMANTOWN RD
UPPER TO
TARKILN RUN
C.R. 605
TUCKAHOE ROAD
DENNIS TOWN
TOWNSEND SOUND
TOWNSEND CHANNEL
STILES SOUND

CAFRA AND PINELANDS

- COUNTY BOUNDARY
- CITY AND/OR TOWNSHIP BOUNDARY
- PRIMARY ROADS
- PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES
- STREAMS, LAKES, PONDS
- RAILROAD
- OLD RAILROAD GRADE
- NJ PINELANDS - RURAL DEVELOPMENT AREA
- NJ PINELANDS - WILD AND SCENIC CORRIDOR
- NJ PINELANDS VILLAGE

- CAFRA ZONE
- NJ PINELANDS
- OVERLAP OF CAFRA ZONE AND NATIONAL PINELANDS RESERVE

- Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)
- Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)
- Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)



ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

Scale 1:63360 / 1" = 1 mile

ATLANTIC COUNTY

CORBIN CITY

WLS AND SCENIC CORRIDOR

NJ PINELANDS

NJ PINELANDS VILLAGE

CAFRA ZONE - GREAT EGG HARBOR
LIMITED GROWTH

NJ PINELANDS - AGRICULTURE
PRODUCTION AREA

NJ PINELANDS - RURAL
DEVELOPMENT AREA

CAPE MAY COUNTY

UPPER TOWNSHIP

DENNIS TOWNSHIP

WOODBINE
PINELANDS TOWN

MATCH LINE

BUTTER RD
C.R. 637

U.S. RTE 9

GARDEN STATE PARKWAY

NEW BRIDGE ROAD
C.R. 616

TUCKAHOE RD
C.R. 631

C.R. 557

C.R. 610

C.R. 628
CORSONS TAVERN ROAD

C.R. 608
KINGS HIGHWAY

C.R. 550

C.R. 605

C.R. 670

C.R. 617

WOODBINE-OCEAN VIEW RD

FIDLER ROAD

HAGAN ROAD

WOODBINE AVE

DENNISVILLE-PETERSBURG RD

STEELMANTOWN RD

TUCKAHOE ROAD

TARKLIN RUN

CEDAR SWAMP CREEK

OCEAN SAMSEGO

LUDLAM BAY

SEA ISLE BLVD

MAGNOLIA LAKE

TOWNSEND SOUND

TOWNSEND CHANNEL

STILES SOUND

FLAT CREEK

CHANNEL

MAIN

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

NJ PINELANDS - RURAL DEVELOPMENT AREA

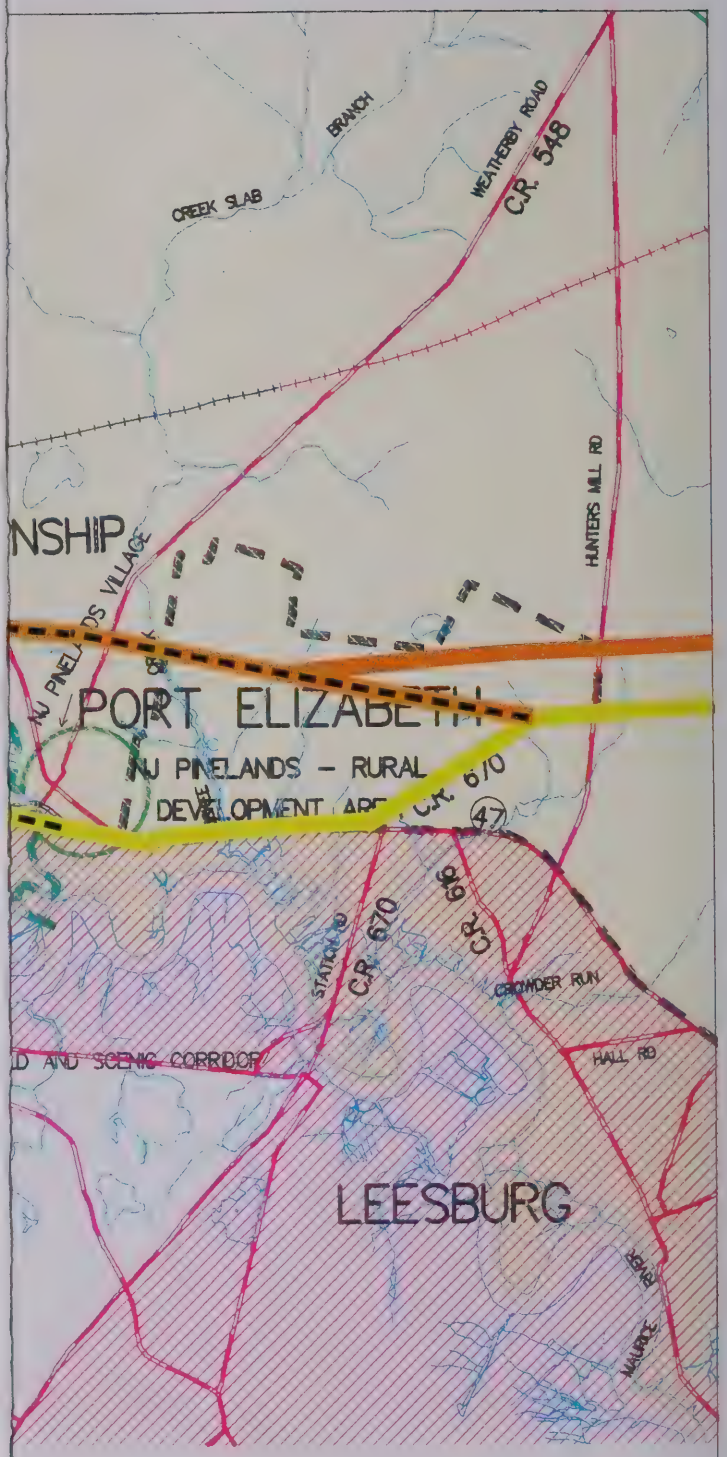
NJ PINELANDS - WILD AND SCENIC CORRIDOR

NJ PINELANDS VILLAGE

CAFRA ZONE

NJ PINELANDS

OVERLAP OF CAFRA ZONE AND NATIONAL PINELANDS RESERVE



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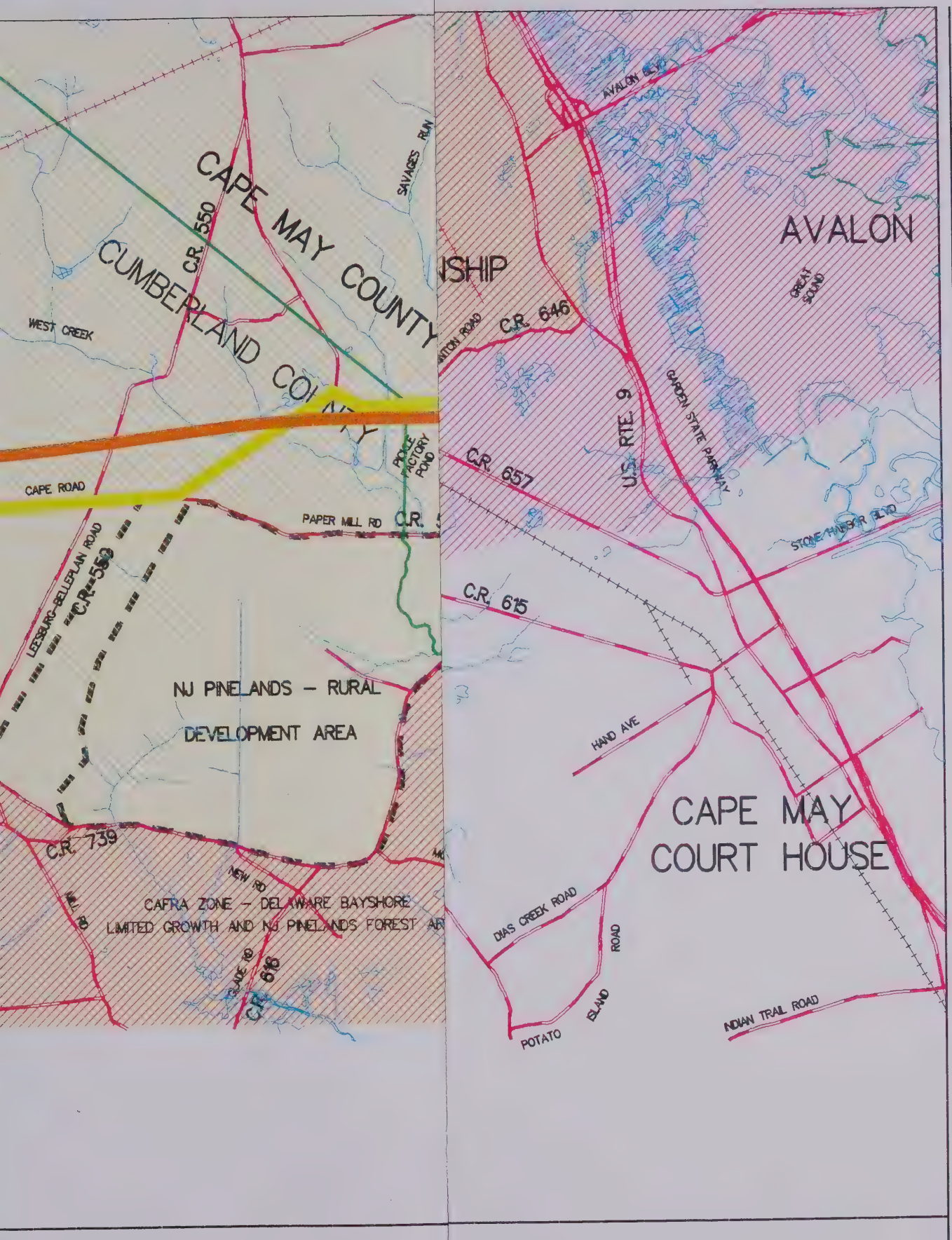
CAPE MAY COUNTY
CUMBERLAND COUNTY
SAVAGES RUN
C.R. 550
WEST CREEK
CAPE ROAD
PAPER MILL RD
C.R. 5
LEESBURG-BELLEPLAIN ROAD
C.R. 550
NJ PINELANDS - RURAL
DEVELOPMENT AREA
C.R. 739
NEW RD
CAFRA ZONE - DELAWARE BAYSHORE
LIMITED GROWTH AND NJ PINELANDS FOREST AR
GAVE RD
C.R. 646
POUCE FACTORY POND
AVALON BLVD
AVALON
GREAT SOUND
C.R. 646
U.S. RTE 9
GARDEN STATE PARKWAY
C.R. 657
STONE HARBOR BLVD
C.R. 615
HAND AVE
CAPE MAY
COURT HOUSE
DIAS CREEK ROAD
POTATO ISLAND ROAD
INDIAN TRAIL ROAD

RO

ENMAP

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

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RAILROAD

OLD RAILROAD GRADE

NJ PINELANDS - RURAL DEVELOPMENT AREA

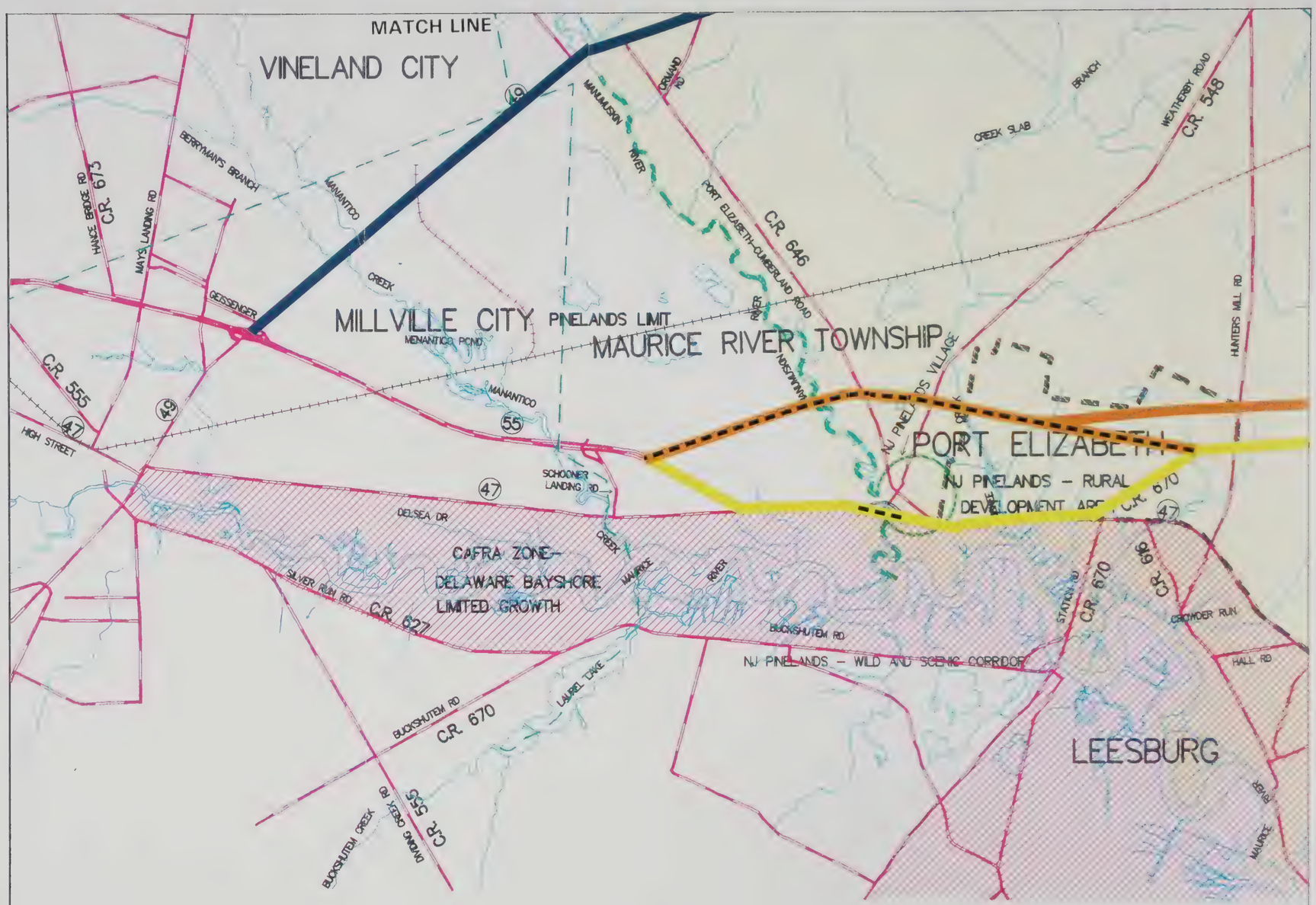
NJ PINELANDS - WILD AND SCENIC CORRIDOR

NJ PINELANDS VILLAGE

CAFRA ZONE

NJ PINELANDS

OVERLAP OF CAFRA ZONE AND NATIONAL PINELANDS RESERVE



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Scale 1:63360 / 1" = 1 mile

CAFRA AND PINELANDS

ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

AME LANDS

- COUNTY BOUNDARY
- CITY AND/OR TOWNSHIP BOUNDARY
- PRIMARY ROADS
- PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES
- STREAMS, LAKES, PONDS
- RAILROAD
- OLD RAILROAD GRADE

- COUNTY AGRICULTURE DEVELOPMENT AREAS (ADA's)
- PARKS, FOREST, GAMELANDS
- PROPOSED DEVELOPMENT SINGLE FAMILY UNITS
- FARMSTEADS ENROLLED IN 8 YEAR PRESERVATION PROGRAM
- AREAS DESIGNATED AS HIGH FOR POTENTIAL CONTAMINATION
- PARKS, FORESTS, GAMELANDS, AND PROPOSED DEVELOPMENT SINGLE FAMILY UNITS
- PARKS, FORESTS, GAMELANDS, AND COUNTY AGRICULTURE DEVELOPMENT AREAS

- Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)
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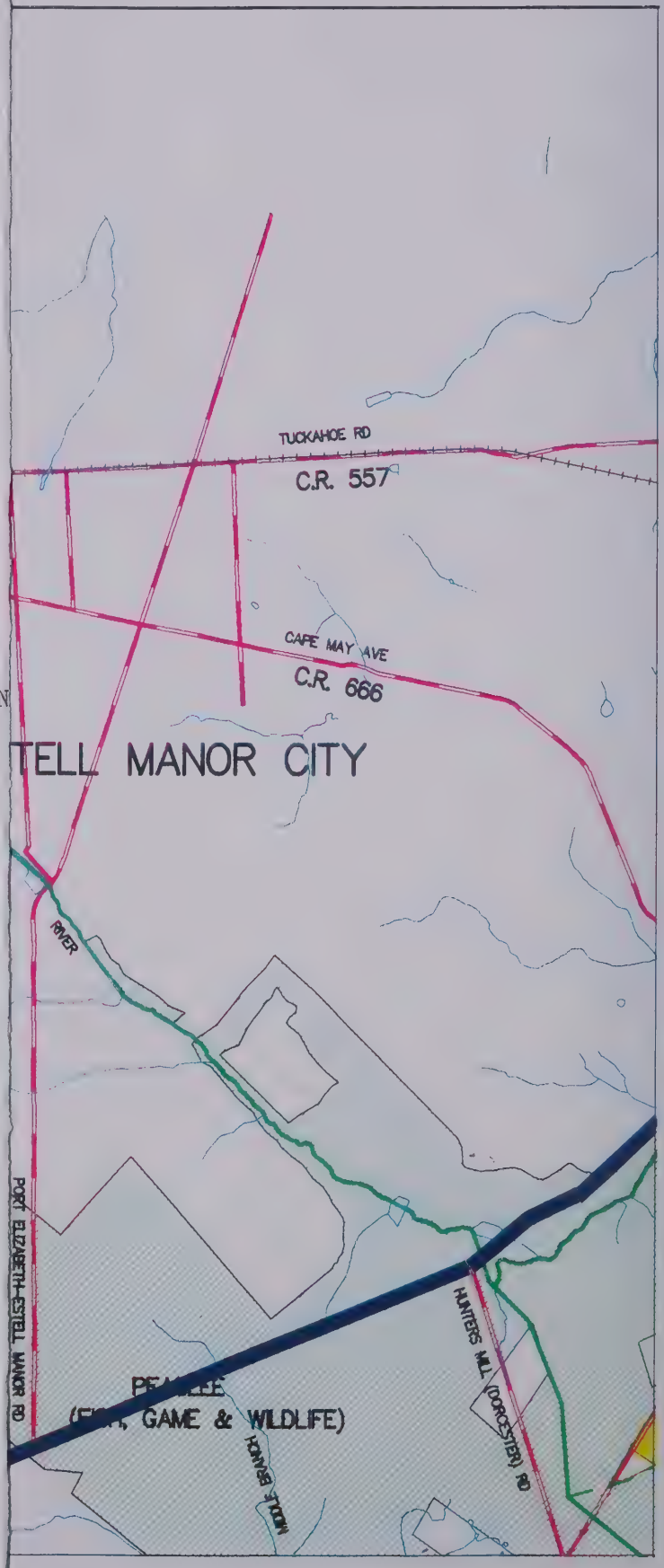
- Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)



RO
ENMAP

N
Scale 1:63360 / 1" = 1 mile
LESTER G. MacNAMARA
(FISH, GAME & WILDLIFE)
50
ATLANTIC COUNT
50
CORBIN CITY
TUCKAHO
49
C.R. 617
TUCKAHOE
49
49
MILL RD
MILL CREEK
RIVER
LUDLAM BAY
LIFE)
CRUISE
SEA ISLE BLVD
STEELMANTOWN RD
OUND (PARKS & FORESTS)
UPPER TO
TOWNSEND SOUND
TOWNSEND CHANNEL
TARKLN RUN
C.R. 605
TUCKAHOE ROAD
DENNIS TOWN
CAPE MAY AREA — WETLANDS NATURAL AREA
STILES SOUND

PARKS, FORESTS AND GAME LANDS

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

COUNTY AGRICULTURE DEVELOPMENT AREAS (ADA's)

PARKS, FOREST, GAMELANDS

PROPOSED DEVELOPMENT SINGLE FAMILY UNITS

FARMSTEADS ENROLLED IN 8 YEAR PRESERVATION PROGRAM

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PARKS, FORESTS, GAMELANDS, AND PROPOSED DEVELOPMENT SINGLE FAMILY UNITS

PARKS, FORESTS, GAMELANDS, AND COUNTY AGRICULTURE DEVELOPMENT AREAS

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

Scale 1:63360 / 1" = 1 mile

LESTER G. MacNAMARA
(FISH, GAME & WILDLIFE)

ATLANTIC COUNTY

CORBIN CITY

TUCKAHOE BEACH

MUNICIPAL PLAY PARK

TUCKAHOE PARK

OPEN SPACE

BETTS SOCCER MUNICIPAL PARK

PETERSBURG MUNICIPAL PARK

CAPE MAY COUNTY

C.R. 557

C.R. 617

MILL RD

MILL CREEK

TUCKAHOE RIVER

TUCKAHOE ROAD

C.R. 631

PETERSBURG AVE

DENNISVILLE-PETERSBURG RD

C.R. 610

BUTTER RD

C.R. 637

U.S. RTE 9

NEW BRIDGE ROAD

C.R. 616

MARINE CONSORT. MUNICIPAL PARK

CEDAR SWAMP CREEK

GARDEN STATE PARKWAY

CORSONS SOUND

MARMORA COASTAL WETLANDS
(FISH, GAME & WILDLIFE)

LUDLAM BAY

PROPOSED CAPE MAY NATIONAL WILDLIFE REFUGE
REF: FINAL ENVIRONMENTAL ASSESSMENT (NOV.88)

STEELMANTOWN RD

WOODBINE-OCEAN VIEW RD

C.R. 550

UPPER TOWNSHIP

LINCOLN MUNICIPAL PARK

WOODBINE

BELLEPLAIN STATE FOREST

C.R. 628

CORSONS TAVERN ROAD

MAGNOLIA LAKE

GREAT SOUND (PARKS & FORESTS)

TOWNSEND SOUND

TOWNSEND CHANNEL

TARKILN RUN

C.R. 605

TUCKAHOE ROAD

DENNIS TOWNSHIP

WEBERS RD

C.R. 557

FIDLER ROAD

DENNISVILLE - WOODBINE RD

C.R. 670

WOODBINE AVE.

KINGS HIGHWAY

C.R. 606

HAGAW ROAD

CAPE MAY AREA — WETLANDS NATURAL AREA

STILES SOUND

MATCH LINE

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

Land Service Improvements: 49/50 Corridor (blue dashed line indicates bypasses along 49/50 Corridor)

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

COUNTY AGRICULTURE DEVELOPMENT AREAS (ADA's)

PARKS, FOREST, GAMELANDS

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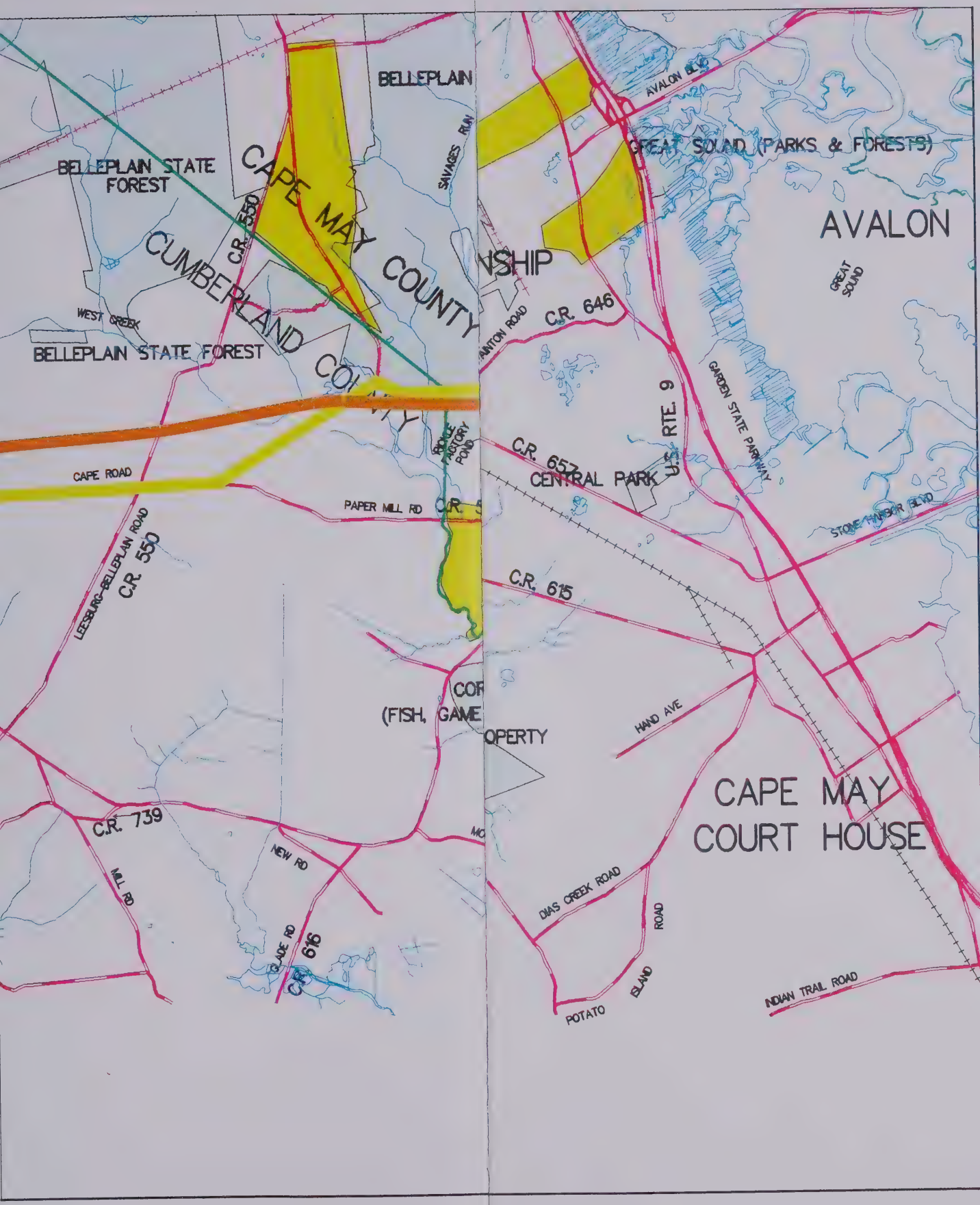
PARKS, FORESTS, GAMELANDS, AND COUNTY AGRICULTURE DEVELOPMENT AREAS

AME LANDS

Gannett


BELLEPLAIN
BELLEPLAIN STATE FOREST
CAPE MAY COUNTY
CUMBERLAND COUNTY
C.R. 550
SAVAGES RUN
WEST CREEK
BELLEPLAIN STATE FOREST
CAPE ROAD
PAPER MILL RD
C.R. 550
LEESBURG-BELLEPLAIN ROAD
C.R. 615
(FISH, GAME
OPERTY
C.R. 739
NEW RD
MILL RD
GLADE RD
C.R. 646
AVALON BLVD
GREAT SOUND (PARKS & FORESTS)
AVALON
GREAT SOUND
GARDEN STATE PARKWAY
RTE. 9
C.R. 657
CENTRAL PARK
STONE HARBOR BLVD
HAND AVE
CAPE MAY COURT HOUSE
DIAS CREEK ROAD
POTATO
ISLAND
ROAD
INDIAN TRAIL ROAD

R O

E N M A P

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

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COUNTY BOUNDARY

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PRIMARY ROADS

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STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

COUNTY AGRICULTURE DEVELOPMENT AREAS (ADA's)

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PROPOSED DEVELOPMENT SINGLE FAMILY UNITS

FARMSTEADS ENROLLED IN 8 YEAR PRESERVATION PROGRAM

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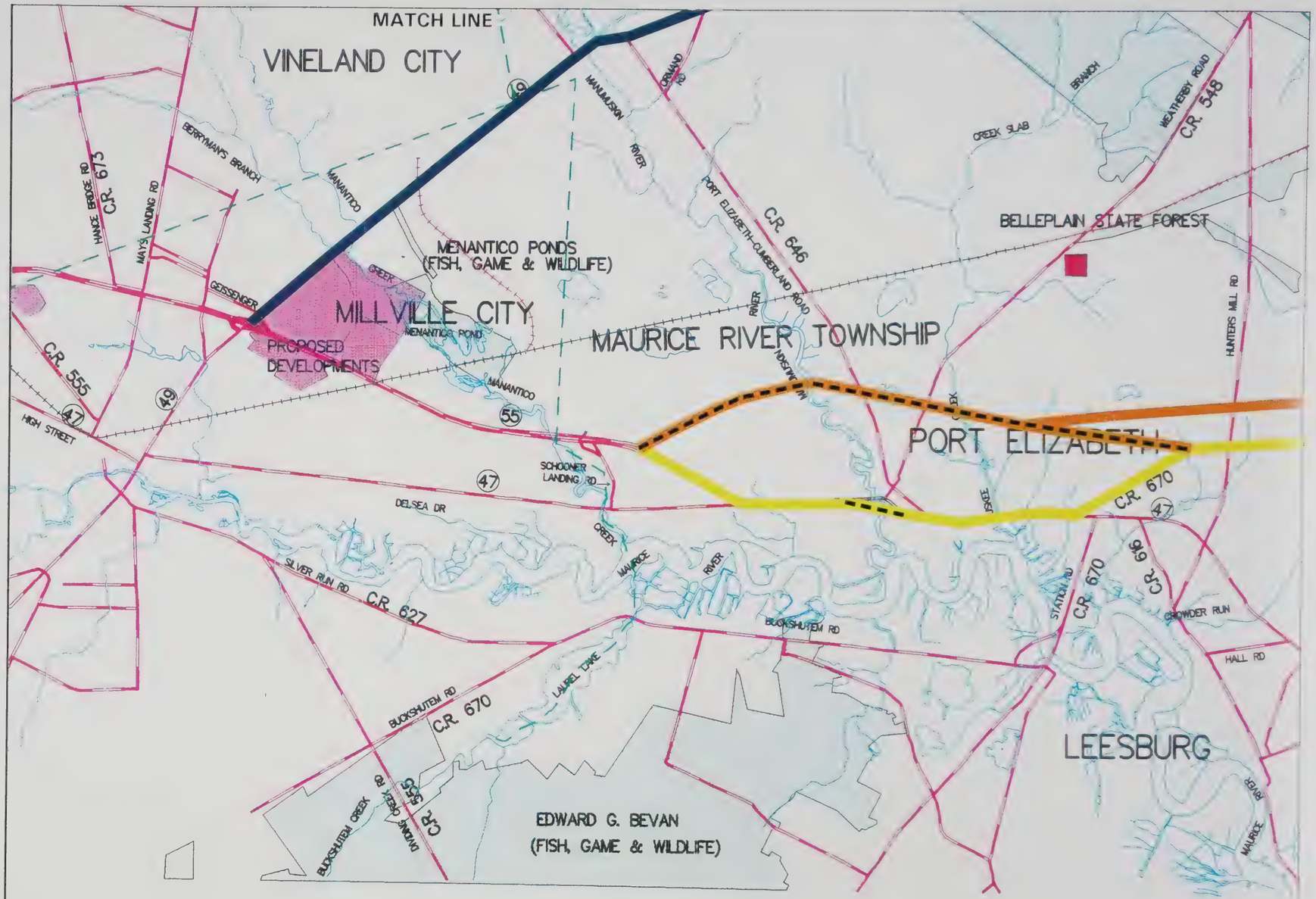
PARKS, FORESTS, GAMELANDS, AND PROPOSED DEVELOPMENT SINGLE FAMILY UNITS

PARKS, FORESTS, GAMELANDS, AND COUNTY AGRICULTURE DEVELOPMENT AREAS



Gannett Fleming, Inc.

Scale 1:63360 / 1" = 1 mile

PARKS, FORESTS AND GAME LANDS

ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

ARCHITECURAL POINT OF INTERE

PARKS

WETLANDS

CAFRA AND PINELANDS

ENDANGERED SPECIES KNOWN & APPROXIMATELY KNOWN LOCATIONS

ARCHITECTURAL POINTS OF INTEREST

Freeway Alignment (orange dashed line indicates bypass along Freeway Alignment)

Land Service Improvements: 47/670/83 Corridor (yellow dashed line indicates bypasses along 47/670/83 Corridor)

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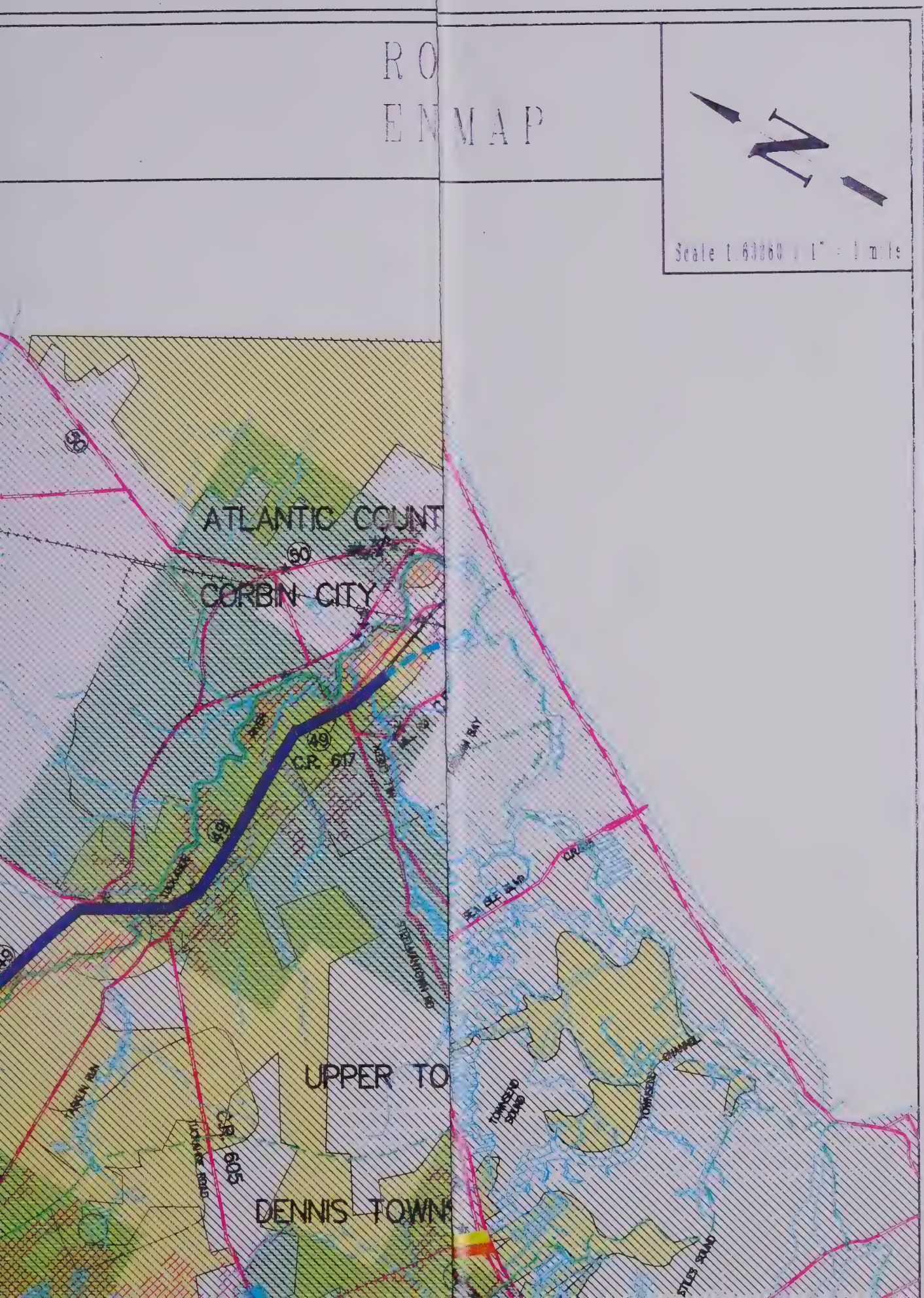
R O
E N MAP
N
Scale 1:63360 = 1" = 1 mile
ATLANTIC COUNT
CORBIN CITY
50
49
C.R. 617
UPPER TO
DENNIS TOWN
C.R. 605
TOWNSEND SOUND
TOWNSEND CHANNEL
STILES SOUND

COMPOSITE OVERLAY

- COUNTY BOUNDARY
- CITY AND/OR TOWNSHIP BOUNDARY
- PRIMARY ROADS
- PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES
- STREAMS, LAKES, PONDS
- RAILROAD
- OLD RAILROAD GRADE
- ★ ARCHITECURAL POINT OF INTEREST
- PARKS
- WETLANDS
- CAFRA AND PINELANDS
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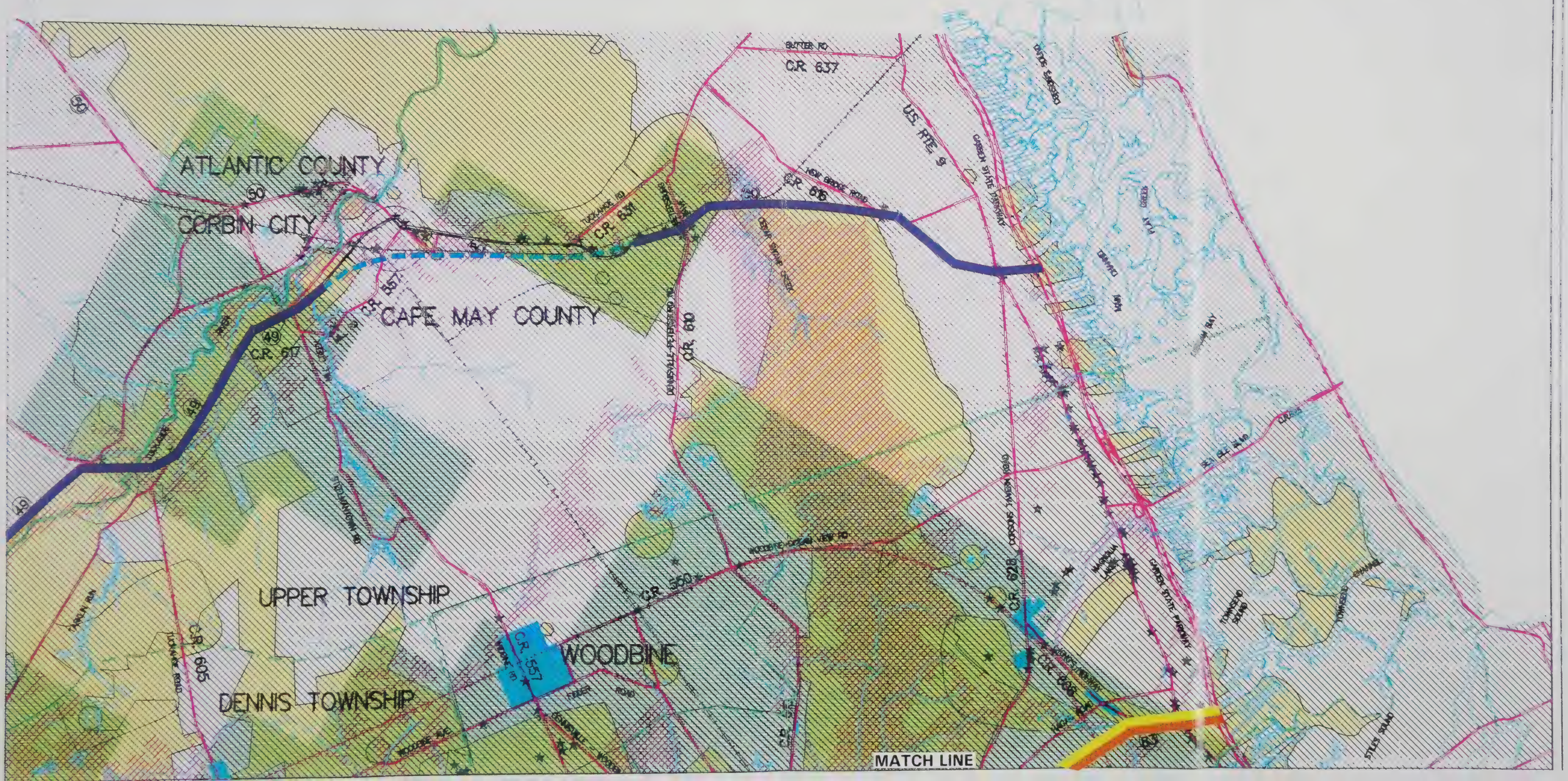
ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP



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COUNTY BOUNDARY

CITY AND/OR TOWNSHIP BOUNDARY

PRIMARY ROADS

PRIMARY ROADS BEING CONSIDERED FOR ROUTE ALTERNATIVES

STREAMS, LAKES, PONDS

RAILROAD

OLD RAILROAD GRADE

ARCHITECURAL POINT OF INTEREST

PARKS

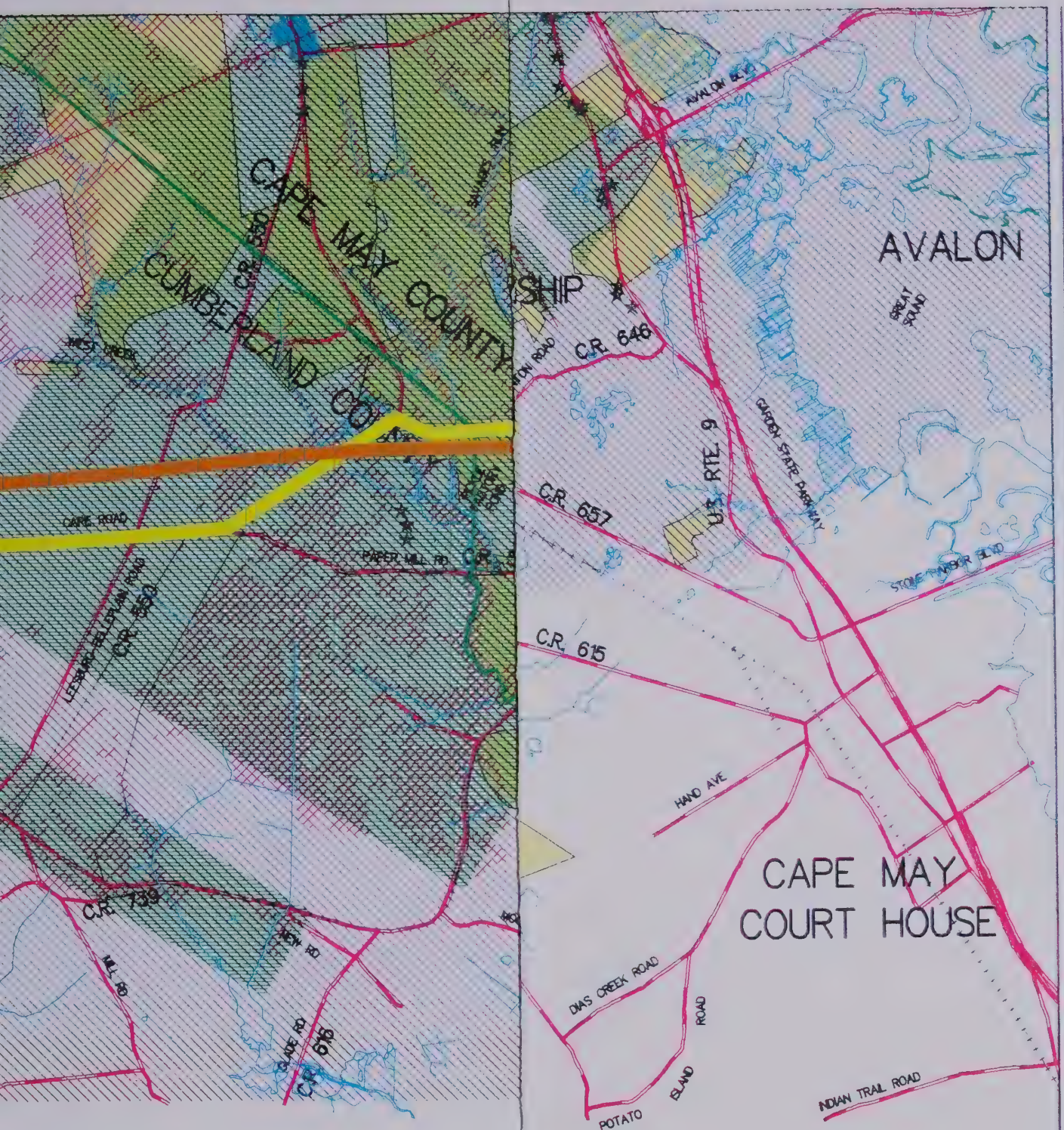
WETLANDS

CAFRA AND PINELANDS

ENDANGERED SPECIES KNOWN & APPROXIMATELY KNOWN LOCATIONS

ARCHITECTURAL POINTS OF INTEREST

Gannett F


CAPE MAY COUNTY
CUMBERLAND CO
SHIP
AVALON
AVALON BLVD
GREAT SOUND
C.R. 646
JON ROAD
U.S. RTE. 9
GARDEN STATE PARKWAY
C.R. 657
STONE HARBOR BLVD
C.R. 615
HAND AVE
CAPE MAY COURT HOUSE
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POTATO
ISLAND
ROAD
INDIAN TRAIL ROAD
CAPE ROAD
PARSEY MILL RD
C.R. 650
LEESBURG-BELLPLAIN ROAD
C.R. 739
MILL RD
NEW RD
GLADE RD
C.R. 616

R O

E N M A P

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OLD RAILROAD GRADE

ARCHITECTURAL POINT OF INTEREST

PARKS

WETLANDS

FARMS AND WOODLANDS

ENDANGERED SPECIES KNOWN & APPROXIMATELY KNOWN LOCATIONS

ARCHITECTURAL POINTS OF INTEREST

N

Scale 1:63360 ; 1" = 1 mile

Gannett Fleming, Inc.

COMPOSITE OVERLAY

ROUTE 55 EXTENSION STUDY
ENVIRONMENTALLY SENSITIVE AREAS MAP

APPENDIX C

Cost Estimate

Cost Summary

(data represent millions of 1991 dollars)

	Rt. 55 Freeway Alternates		Rt. 47 / 670 / 83 Land Service Alternates						Rt. 49 / 50 Land Service Alternates	
	Alt. 1	Alt. 2	Alt. 3	Alt. 4	Alt. 5	Alt. 5A	Alt. 6	Alt. 6A	Alt. 7	Alt. 7A
Roadway Costs	184.5	196.6	88.5	73.3	126.6	144.7	124.9	145.5	_____	_____
Structure Costs	153.2	193.6	58.5	44.2	67.1	87.5	80.8	108.1	_____	_____
Utility Costs	30.4	35.1	13.2	10.6	17.5	20.9	18.5	22.8	_____	_____
Total Construction	368.1	425.3	160.2	128.0	211.2	253.1	224.2	276.4	_____	_____
R.O.W. Costs	19.4	19.6	4.4	1.6	17.9	17.9	18.0	18.0	_____	_____
Wetland Mitigation @ 2:1 Ratio	35.9	38.4	12.1	8.5	24.2	25.3	26.0	26.4	_____	_____
Project Costs	$423.4	$483.3	$176.6	$138.1	$253.2	$296.2	$268.2	$320.8	$_____	$_____

APPENDIX D

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Alternative 4 74
Alternative 5 76
Alternative 5A 78
Alternative 6 80
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Alternative 4 95
Alternative 5 97
Alternative 5A 99
Alternative 6 101
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Route 47/670/83 Corridor: Preliminary Design Study XXX

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